

**EXPANDED SITE INSPECTION REPORT  
LORRAINE REFINERY  
CREEK COUNTY, OKLAHOMA  
EPA CERCLIS ID # OKN000606909**

**September 29th, 2010**

**STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND PROTECTION DIVISION  
SITE ASSESSMENT UNIT**

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Date: September 29<sup>th</sup>, 2010

Prepared by: Todd Downham, State of Oklahoma DEQ

Site: Lorraine Refinery, Creek County

EPA ID #: OKN000606909

## **1. INTRODUCTION**

The State of Oklahoma Department of Environmental Quality (DEQ) under the Multi-Site Cooperative Agreement (CA# V-00645-01) with the U.S. Environmental Protection Agency (EPA), as authorized by CERCLA and as amended by SARA, conducted a Expanded site inspection (ESI) of the Lorraine Refinery Site (CERCLIS # OKN000606909), located in Creek County, Oklahoma (Reference 1).

The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment, to determine the need for additional investigation under CERCLA/SARA, and, if appropriate, support site evaluation using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL). This investigation included reviewing information collected during the site visits, sampling environmental media for determination of the presence and extent of hazardous substances on-site and the migration of these substances from the site, evaluating and documenting HRS factors, and collecting additional non-sampling information. The ESI followed the procedures set forth in the *EPA Guidance for Performing Site Inspections Under CERCLA*, Interim Final, EPA 540-R-92-021 and will be used in support of a decision by EPA Region 6 as to whether the site warrants further investigation under CERCLA (Reference 2).

The project followed the procedures set forth in the Quality Assurance Project Plan (QAPP) (Reference 3) and the approved DEQ Quality Management Plan (QMP) for State fiscal year 2009-10, EPA QTRAK # 09-039 (Reference 4).

## **2. SITE DESCRIPTION**

### **2.1 Location**

The Site consists of the former Lorraine/Wilcox Refinery located in N ½ of the NW 1/4 of S29 T16N R9E and the SW 1/4 of the SW ¼ of S20 T16N R9E in Creek County, Oklahoma. The site's center has the coordinates 96°22'48.693" West longitude 35°50'26.8966" north latitude. The site covers approximately 125 acres (Reference 5; Figure 1).



## **2.2     Site Description**

The site includes remnants of former oil refining operations and tank farms. The site can be divided into four major former operational areas: two refining areas and two tank farms. An active railroad divides the two former refining areas and former tank farms. Most of the refinery structures and tanks have been removed or are in ruins. The northwestern portion of the site, west of the railroad and north of West 221<sup>st</sup> Street South/Refinery Road, was used as a tank farm, but is now rural land no longer used for refinery purposes. The southwestern portion of the site had refining operations and several large storage tanks. The southwestern portion is the location of the First Assembly of God Church and one residence (Reference 5).

East of the railroad and south of West 221<sup>st</sup> Street South/Refinery Road were refining operations and a tank farm to the east. There are a total of six residences on the site, several of which are located on former tank or refinery operations locations. Three of the residences located on the eastern portion of the site are known to use water from domestic/private wells.

The drainage pattern of the site is primarily towards Sand Creek that follows the western and southwestern boundaries of the site. Two streams cross the portion of the site east of the railroad, both of which flow into Sand Creek (Reference 5).

There are multiple areas of stressed vegetation, barren areas, and visible black tarry waste of a hydrocarbon nature (Reference 5).

A detailed title search in the Creek County Clerk office confirms that the property was used in oil refinery operations from 1915 until November 1963. Site access is not controlled. There are no fences on the property and there are no schools or day cares located within 200 feet of the site (Reference 5).

## **2.3     Previous Investigations and Regulatory History**

A Preliminary Assessment (PA) was performed at the former Wilcox Refinery by the Oklahoma Department of Environmental Quality (ODEQ) in December 1994 (Reference 6).

An ESI was performed at the Wilcox site for the Environmental Protection Agency (EPA) in March 1997 (Reference 7).

A Site Assessment (SA) was performed at the Wilcox Site by EPA in March 1999 (Reference 8).

A PA was performed at the former Lorraine Refinery by ODEQ in September 2008 (Reference 9).

A SI was performed at the Lorraine Site by ODEQ in August 2009 (Reference 10).

There is no information of any regulatory measures taking place at either refinery.

## **2.4     Operational History and Waste Characteristics**

The area was once occupied by an oil refinery. The wastes associated with this type of facility include crude oil, tank residues, brine, acid and caustic sludges, heavy metals, petroleum products, coke, sulfur compounds, and solvents. Waste management practices are unknown for this facility (Reference 5).

There is no information of any regulatory measures taking place at the refinery. The Sanborn Insurance Map indicates that the property contained about 65 storage tanks of various sizes, a cooling pond, and around 10 buildings housing refinery operations. The map also indicated that crude oil, fuel oil, gas oil, distillate, kerosene, benzene, and benzene (petroleum ether) were all stored on the property by the Lorraine/Wilcox Refining Company (Reference 5). There are several areas of stressed vegetation, barren soil, and spots of tarry waste (Reference 5).

### **3. WASTE/SOURCE SAMPLING**

After reviewing a Soil Survey of Creek County (Reference 11), Sanborn maps (Reference 12), and previous investigations (References 5, 6, 7, and 8), samples locations were determined.

#### **3.1 Sample Locations**

Table 1, Figures 3 and 4 presents sample numbers, locations, and objectives for all samples collected during the ESI. Nine soil samples, five waste samples, ten ground water samples, two background samples, and three QA/QC samples were collected to identify hazardous substances at the site and investigate whether these substances have been released into the environment, especially a possible migration of the contaminants from the site to the aquifer (Reference 18).

#### **3.2 Analytical Results**

The collected samples were analyzed for total metals; including mercury, Volatile and Semi-volatile Organics using Oklahoma State Environmental Laboratory (SEL) methods and procedures (Reference 13 and 14).

The following Waste samples showed elevated levels of Semi-volatile Organic contaminants: Waste samples LWW-4 and LWW-5 (Reference 14).

The following Waste samples showed elevated levels of Metals contaminants: Waste samples LWW-1, LWW-3, LWW-4, LWW-5, and LWW-6 (Reference 14).

The following Surface Soil samples showed elevated levels of Metals contaminants when compared to background samples: Surface Soil samples LWSS-3, LWSS-4, LWSS-5, LWSS-6, LWSS-7, and LWSS-8 (Reference 14).

The following Groundwater samples showed elevated levels of Metals contaminants when compared to background samples: Groundwater samples: LWGW-1, LWGW-2, LWGW-3, LWGW-4, LWGW-5, LWGW-6, LWGW-7, LWGW-8, and LWGW-10 (Reference 14).

The analytical data for these samples is shown in Tables 2, 3, 4, and 5 of this document.

### **3.3     Sources**

Based on the analytical data presented in Tables 2, 3, 4, 5, and information collected during the sampling event, the location, type, and size of on-site source was determined.

After triangulating between Surface Soil sample points LWSS-3, LWSS-4, LWSS-5, LWSS-6, LWSS-7, and LWSS-8, it was concluded that the contaminated soil source area is a polygon and covers about 12.5 acres (Figure 5).

The area of contaminated soil is considered a waste source for the purposes of this ESI.

Previous investigations and historical documents/maps provide information about location and size of former storage tanks used by the refinery. The total area covered by former tank locations, where waste samples were collected, and which indicate measurable levels of contaminants is considered a waste source for the purposes of this ESI (Reference 2, Figure 7).

### **3.4     Conclusions**

The site area contains elevated concentrations of metals in all but one Surface Soil sample location. Elevated organic compounds are present in two former storage tank locations in the middle and southwest portions of the site. The presence of elevated levels of contaminants could be explained by the former refinery activities on the site. The waste is unconfined and could migrate off site via ground water pathway, surface water runoff, or in the air. The presence of elevated metals and organics suggests a potential release of contaminants to off-site surface waters (Reference 14; Figures 5 and 7).

## **4.     GROUND WATER PATHWAY**

### **4.1     Hydrogeology**

The Barnsdall Formation is approximately 200 feet thick at the site and consists of massive to thin beds of coarse to fine grain sandstone, irregularly interbedded with sandy to silty shale. Sandstone outcrops of the Barnsdall Formation are common throughout the site, and potentially receive ground water recharge from downward infiltration of direct precipitation at the surface, as well as infiltration from shallow, perched ground water zones. The Barnsdall Formation is a bedrock aquifer but is not considered to be a Principal Ground Water Resource by the Oklahoma State Department of Health (OSDH). However, the site is in close proximity to the Vamoosa-Ada aquifer (References 6 and 8).

The upper part the Barnsdall Formation and Sand Creek alluvial aquifer are unconfined, with shallow water table. The site is in a potential recharge area and thus is susceptible to ground water contamination from petroleum waste or contaminated soils. Depths to seasonal perched water zones are less than 10 feet and the shallowest regional water bearing formation is reportedly less than 25 feet below ground surface (bgs) (References 6 and 8).

## 4.2 Targets

Of the residences on site, three have private wells that are used for drinking water. There are three residents directly north of the site and two residents south of the site that use ground water from private wells. A total of eight residents on/near the site are considered to be primary targets for the Ground Water pathway of this investigation. There are four residences on site that obtain water from public/municipal wells that are located within 2 miles of the site; these wells are outside the influence of the site (References 5 and 15; Figure 3).

The total population served by private wells is described in the table below. The numbers were arrived at by multiplying the number of wells by the estimated average number of persons (2.53) within each household in Creek County, with the exception of the On-site populations which were determined by direct communication with residents (References 5 and 10).

*Private/Domestic Wells*

<b>Distance from Site (mi)</b>	<b># of Wells</b>	<b>Est. Population Served by Private Wells</b>
On-site	3	9
0 – ¼	8	24
¼ - ½	0	0
½ - 1	4	10.12
1 – 2	25	63.25
2 – 3	20	50.6
3 – 4	29	73.37
<b>Total</b>	<b>89</b>	<b>230.34</b>

There are five ground water wells, that compromise the City of Bristow public water supply system, located about 1-2 miles west, northwest, and southwest of the site, in the direction opposite and perpendicular to ground water flow. There are no public water wells contributing more than 40% of the total output of the system, which serves an overwhelming majority of the population of the area of interest. The population was calculated by multiplication of the number of households connected to the public water system by the average number of persons per household (References 10 and 15).

It was decided that sampling of the public/municipal ground water wells is not warranted for the purposes of this ESI.

*Public Wells*

<b>Distance from Site (mi)</b>	<b># of Wells</b>	<b>Est. Population Served by Public Wells</b>
On-site	0	0
0 – ¼	0	0
¼ - ½	0	0
½ - 1	0	0
1 - 2	<b>5</b>	3869
2 – 3	0	0
3 – 4	0	0
<b>Total</b>	5	3869

### **4.3 Analytical Results**

Ground Water samples from private residential wells were collected during the ESI and were analyzed for total metals and the volatile and semi-volatile organics (References 2, 3 and 5). Concentrations greater than three times background for several metals were detected in all Ground Water samples collected during the ESI, however metals concentrations were not considered to be a health threat when compared to MCL's (References 2, 14 and 16; Figure 6).

The analytical data for the soil samples are presented in Tables 2.

### **4.4 Conclusions**

Primary private target wells were identified and sampled within the study area. Public/municipal wells were determined to be outside the influence of the site and were not sampled for the purposes of the ESI. Sample results indicate elevated level of contaminants, but were below concentrations that would pose a threat to human health.

## **5. SURFACE WATER PATHWAY**

### **5.1 Hydrology**

The drainage pattern for the site is generally to the south. There are three locations where overland flow of surface waters across the site enters perennial waters (Sand Creek). These three locations are likely the most significant probable point of entry (PPE). Sand Creek meanders approximately 2 miles east until it merges with Little Deep Fork Creek, which is the third surface water body within fifteen miles downstream of the PPE (Reference 2; Figure 2).

According to gauging station #07243500 located in the NW ¼ of the SW ¼ of S20 T14N R12E in Okmulgee County, approximately 25 miles southeast from the site, the annual flow rate of the Deep Fork River is 806 cfs. The average annual precipitation in the area is about 37 inches. The 2-year, 24-hour rainfall is about 3.8 inches. The site is not located within the 100-year flood plain (Reference 10).

### **5.2 Targets**

According to the State of Oklahoma, Sand Creek is considered a Habitat Limited Aquatic Community, and a Secondary Body Contact Beneficial Use, as well as having agricultural and aesthetic beneficial uses. Little Deep Fork Creek downstream from Sand Creek is considered a Warm Water Aquatic Community, and a Primary Body Contact Beneficial Use, as well as having agricultural and aesthetic beneficial uses. The Oklahoma Department of Wildlife Conservation lists the Heyburn Wildlife Management Area within the 15-mile target distance. This area and its associated watershed are considered to be sensitive areas (Reference 10).

Several species have been identified within the study area as endangered: American Burying Beetle (*Nicrophorus americanus*), and Interior Least Tern (*Sterna antillarum*). Species identified as threatened or vulnerable are: Woodchuck (*Marmota monax*), Prairie Mole Cricket (*Gryllotalpa major*), and Bachman's Sparrow (*Aimophila aestivalis*). There is no drinking water intakes associated with the surface water pathway (Reference 10).

### **5.3     Sample Locations**

No Surface Water or Sediment samples were collected for this phase of the investigation.

### **5.4     Analytical Results**

No Surface Water or Sediment samples were collected for this phase of the investigation.

### **5.5     Conclusions**

Former investigations indicate measurable levels of contamination that is likely related to refinery operations. Samples collected from Sand Creek and its tributaries may be warranted in a future investigation.

## **6.     SOIL EXPOSURE PATHWAY**

### **6.1     Physical Conditions**

The Site consists of the former Lorraine/Wilcox Refinery located in N ½ of the NW ¼ of S29 T16N R9E and the SW ¼ of the SW ¼ of S20 T16N R9E in Creek County, Oklahoma. The site's center has the coordinates 96°22'48.693" West longitude 35°50'26.8966" north latitude. The site covers approximately 125 acres (Reference 5).

### **6.2     Targets**

There are seven residences and a church located on site. This phase of the investigation focused only on the three eastern-most residents located on the former Wilcox tank farm area.

### **6.3     Sample Locations**

Eight Surface Soil Samples were collected from the site and one background collected outside the influence of the site. Samples were collected from residential yard areas and down gradient of each residence located within the site boundary.

Soil samples were taken in order to determine whether the soil is contaminated and if so, to what extent (References 2 and 5).

Soil samples locations are described in Table 1 and depicted in Figures 3 and 4.

### **6.4     Analytical Results**

Surface soil samples collected during the ESI were analyzed for total metals and the volatile and semi-volatile organics (References 2, 3, 5 and 13).

Concentrations greater than three times background for several metals were detected in most soil samples collected during the ESI (Reference 14; Figure 5). The analytical data for the soil samples are presented in Table 3.

### **6.5     Conclusions**

After triangulating between sample points LWSS-3, LWSS-4, LWSS-5, LWSS-6, LWSS-7, and LWSS-8, it was concluded that the contaminated soil source area has the shape of a polygon and covers about 12 acres. Acreage was plotted using Geographic Information System (GIS) mapping software (Reference 17, Figure 5).

## **7.     AIR PATHWAY**

### **7.1     Site Conditions**

It is likely that air emissions occurred during the operational period of the Lorraine Refinery; however, the only emissions of concern currently at the site are contaminated soil particles and semi-volatile organics that could become airborne.

### **7.2     Targets**

The residents living on site are considered the nearest individuals. The estimated population and wetland acreage within four miles of the site is described in the following table (References 5 and 9).



### Estimated Population and Wetland Acreage

Distance from site (mi)	Estimated Population	Estimated Wetland Acreage
On-site	19	2
0 - ¼	54	4.5
¼ - ½	495	7
½ - 1	1,836	9
1 – 2	2,691	65
2 – 3	1,017	145
3 – 4	517	112
<b>TOTALS</b>	<b>6134</b>	<b>342.3</b>

#### 7.3 Sample Locations/Analytical Results

Since air sampling is outside the scope of an ESI, no formal air monitoring program was conducted and no air samples were collected.

#### 7.4 Conclusions

A release to the air pathway has not been documented at the site, and no odor was detected during the sampling event.

### 8. SUMMARY AND CONCLUSIONS

Two refinery process facilities and storage tank areas once operated on the site. The site area contains elevated concentrations of metals and several organic compounds, which can be explained by the former activities at the former Lorraine and Wilcox refineries. It is estimated that approximately 12 acres, is covered by contaminated soil, based on samples collected. A large volume of visible waste is present where storage tanks once stood. The waste is unconfined and could migrate off site via the ground water pathway, surface water runoff, or in the air. Elevated levels of metals in surface soil samples collected may be considered as an indicator of the migration of the contaminants from the site down gradient towards Sand Creek. A final

conclusion as to the extent of contamination and migration of contaminants into Sand Creek and beyond requires an additional investigation.

## **TABLES AND FIGURES**

**Table 1: Sample Collection**

<b>Sample Number</b>	<b>Sample Type</b>	<b>Location and Justification</b>	<b>Date</b>	<b>Time</b>
LWGW-1	Ground Water	On Site Private Well	6-8-2010	11:05
LWGW-2	Ground Water	On Site Private Well	6-8-2010	11:10
LWGW-3	Ground Water	On Site Private Well	6-8-2010	11:30
LWGW-4	Ground Water	On Site Private Well	6-8-2010	12:55
LWGW-5	Ground Water	Private Well, North of Site	6-8-2010	13:10
LWGW-6	Ground Water	Private Well, North of Site	6-08-2010	10:48
LWGW-7	Ground Water	Private Well, North of Site	6-8-2010	10:30
LWGW-8	Ground Water	Private Well, South of Site	6-8-2010	9:25
LWGW-9	Ground Water	Private Well, Background Location	6-8-2010	13:33
LWGW-10	Ground Water	Private Well, South of Site	6-9-2010	14:35
LWSS-1	Surface Soils	Western-most residence of former Wilcox tank farm	6-9-2010	9:33
LWSS-2	Surface Soils	Western-most residence of former Wilcox tank farm. Duplicate of LWSS-1	6-9-2010	9:33
LWSS-3	Surface Soils	Middle residence of former Wilcox tank farm	6-9-2010	10:00
LWSS-4	Surface Soils	Eastern-most residence of former Wilcox tank farm.	6-9-2010	11:20
LWSS-5	Surface Soils	South of middle residence, former Wilcox tank farm.	6-9-2010	10:07
LWSS-6	Surface Soils	South of western-most residence, former Wilcox tank farm.	6-9-2010	9:10
LWSS-7	Surface Soils	South of eastern-most residence, former Wilcox tank farm.	6-9-2010	11:10
LWSS-8	Surface	Residence south of site	6-9-2010	14:45

	Soils			
LWSS-9	Surface Soils	Background sample location	6-9-2010	15:15
LWW-1	Waste	Former tank location, west of Western-most residence of former Wilcox tank farm	6-9-2010	9:23
LWW-3	Waste	Former tank location, south of middle residence, former Wilcox tank farm.	6-9-2010	10:17
LWW-4	Waste	Duplicate sample of LWW-3, Former tank location, south of middle residence, former Wilcox tank farm.	6-9-2010	10:17
LWW-5	Waste	Former tank location, north of southern site boundary, west of underground pipeline.	6-9-2010	14:00
LWW-6	Waste	Former tank location, north of southern site boundary, east of underground pipeline.	6-9-2010	13:45
Field Blank	QA/QC	On site	6-8-2010	11:15
Field Blank	QA/QC	On site	6-9-2010	11:27
Trip Blank	QA/QC		-	-
Trip Blank	QA/QC		-	-

23 Site Characterization Sample Locations  
2 Background Samples  
4 QA/QC Samples

<b>TABLE 2: ANALYTICAL RESULTS FOR CONTAMINATED GROUND WATER  SAMPLES (ug/l)* COLLECTED DURING THE ESI  LWGW-#.  BACKGROUND SAMPLE: LWGW-9.</b>							
Sample ID	#9	#1	# 2	#3	#4	#5	#6
<i>Substance</i>							
Chromium	< 5	14	9.3	-	-	7.3	-
Copper	< 5	15.6	6.2	9.4	8.9	8	10
Barium	44	-	-	-	-	254	-
Zinc	5.4	-	-	-	-	24	-

<b>TABLE 2 (cont.): ANALYTICAL RESULTS FOR CONTAMINATED GROUND WATER  SAMPLES (ug/l)* COLLECTED DURING THE ESI  LWGW-#.  BACKGROUND SAMPLE: LWGW-9.</b>				
Sample ID	#9	# 7	# 8	# 10
<i>Substance</i>				
Chromium	< 5	-	-	-
Copper	< 5	10	-	36.3
Barium	44	-	-	-
Zinc	5.4	-	109	28.3

**TABLE 3: ANALYTICAL RESULTS FOR SOIL SAMPLES (mg/kg)\* COLLECTED  
DURING THE ESI.  
LWSS-#.  
BACKGROUND SAMPLE: LWSS-9**

Sample ID	# 9	# 1	# 2	# 3	# 4	# 5	# 6	# 7
<i>Substance</i>								
Arsenic	< 10	-	-	-	19.8	-	7.6	-
Copper	< 5	-	-	10.5	52.1	-	-	-
Nickel	< 10	-	-	10.9	23.6	5.8	-	-
Thallium	< 10	-	-	-	-	-	-	8.6

**TABLE 3 (cont.): ANALYTICAL RESULTS FOR SOIL SAMPLES (mg/kg)\* COLLECTED  
DURING THE ESI.  
LWSS-#.  
BACKGROUND SAMPLE: LWSS-9**

Sample ID	# 9	# 8	
<i>Substance</i>			
Arsenic	< 10	-	
Copper	< 5	-	
Nickel	< 10	-	
Thallium	< 10	12	

**TABLE 4: ANALYTICAL RESULTS FOR WASTE SAMPLES (mg/kg)\* COLLECTED  
DURING THE ESI  
LWW-#.  
( NOT COMPARED TO BACKGROUND)**

Sample ID	#1	# 3	# 4	# 5	# 6	
<i>Substance</i>						
Arsenic	8.9	-	-	11	-	
Barium	147	50	74.1	79	138	
Chromium	35.2	15.1	21.2	20.9	12.8	
Copper	9.2	5.4	11.1	8.2	6.8	
Lead	21	12.2	-	164	16	
Nickel	-	5.8	-	13.8	1320	
Zinc	23.4	22.4	24.8	17	16.3	



<b>TABLE 5: ANALYTICAL RESULTS FOR WASTE SAMPLES (ug/kg) COLLECTED DURING THE ESI LWW-#. (NOT COMPARED TO BACKGROUND)</b>						
Sample ID	# 1	# 3	# 4	# 5	# 6	
<i>Substance</i>						
Benzo (b) fluoranthene	-	-	610	-	-	
Benzo (a) pyrene	-	-	410	-	-	
Chrysene	-	-	550	-	-	
Fluoranthene	-	-	1200	-	-	
Phenanthrene	-	-	900	200,000	-	
Pyrene	-	-	880	200,000	-	
Benzo (a) perylene	-	-	600		-	
2-Methylnaphthalene	-	-	-	380,000	-	

\* The above information represents samples which showed elevated levels of contaminants (i. e. 3 x backgrounds). Waste samples were not compared to background levels. The laboratory analyses for all sample points are provided in Reference 14.

The detection limits for SEL are provided in its Quality Assurance Plan (Reference 13).

Figure 1: Site Location Map

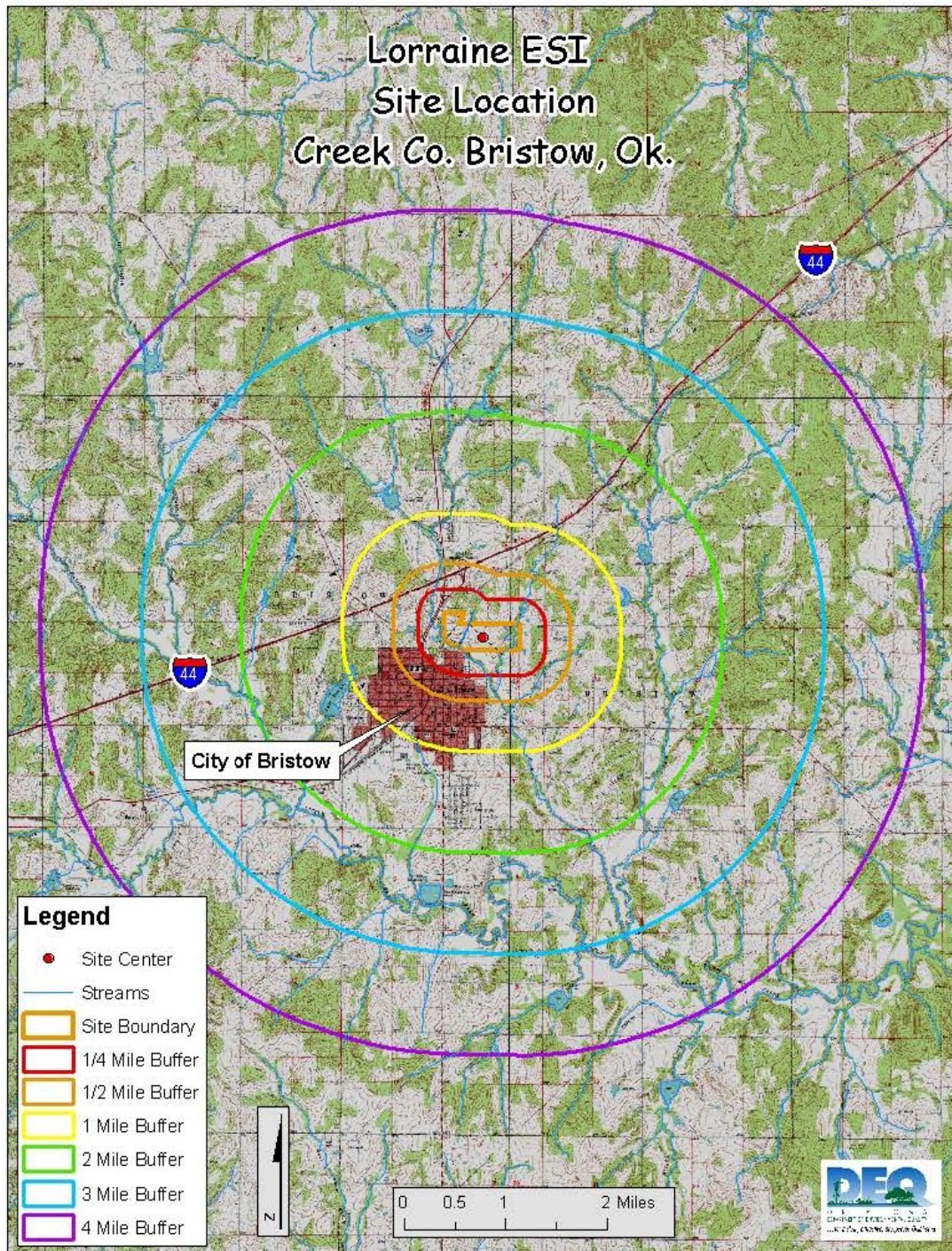
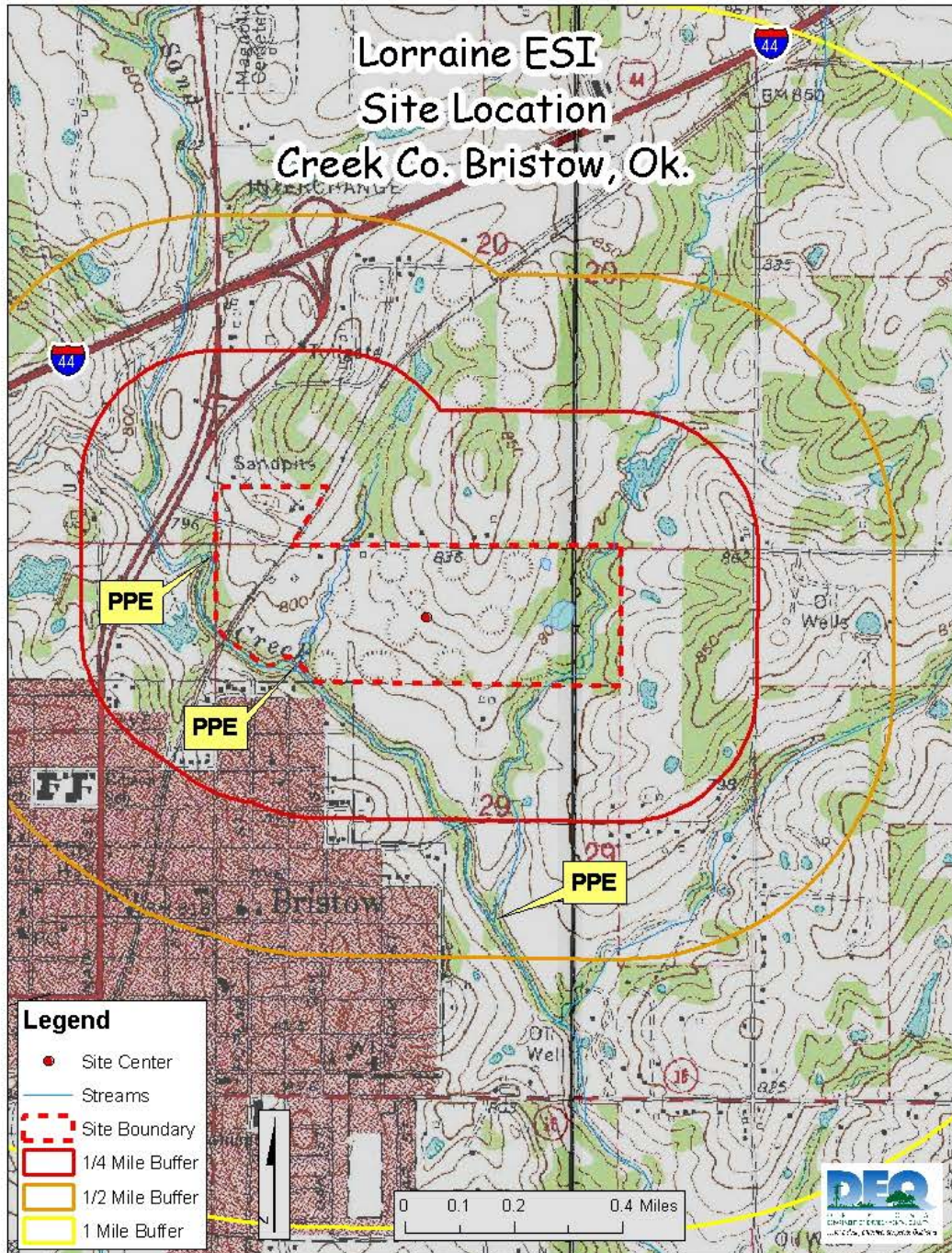


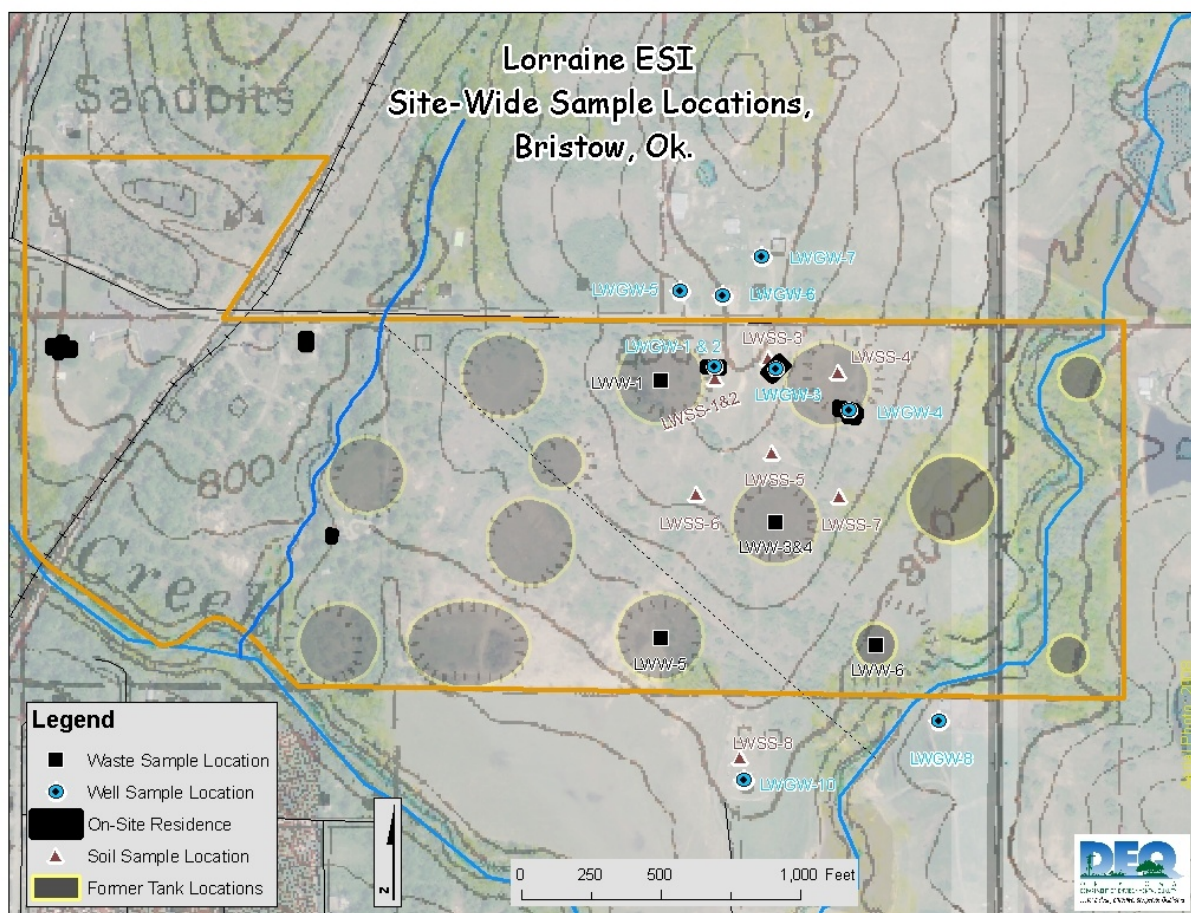


Figure 2: Site Location and PPE Map





**Figure 3: Site-Wide Sample Locations Map**



**Figure 4: Off-Site Sample Locations Map**

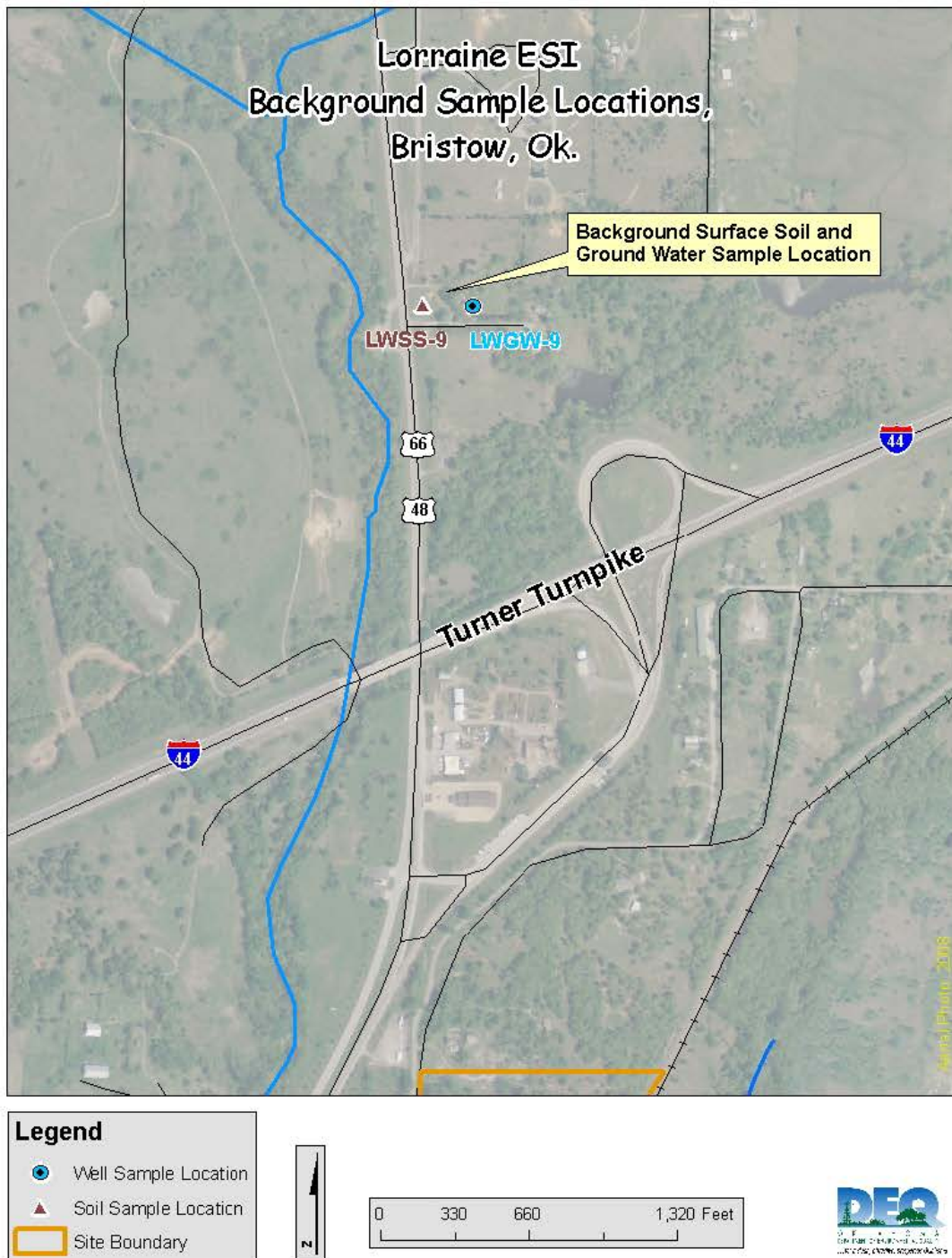
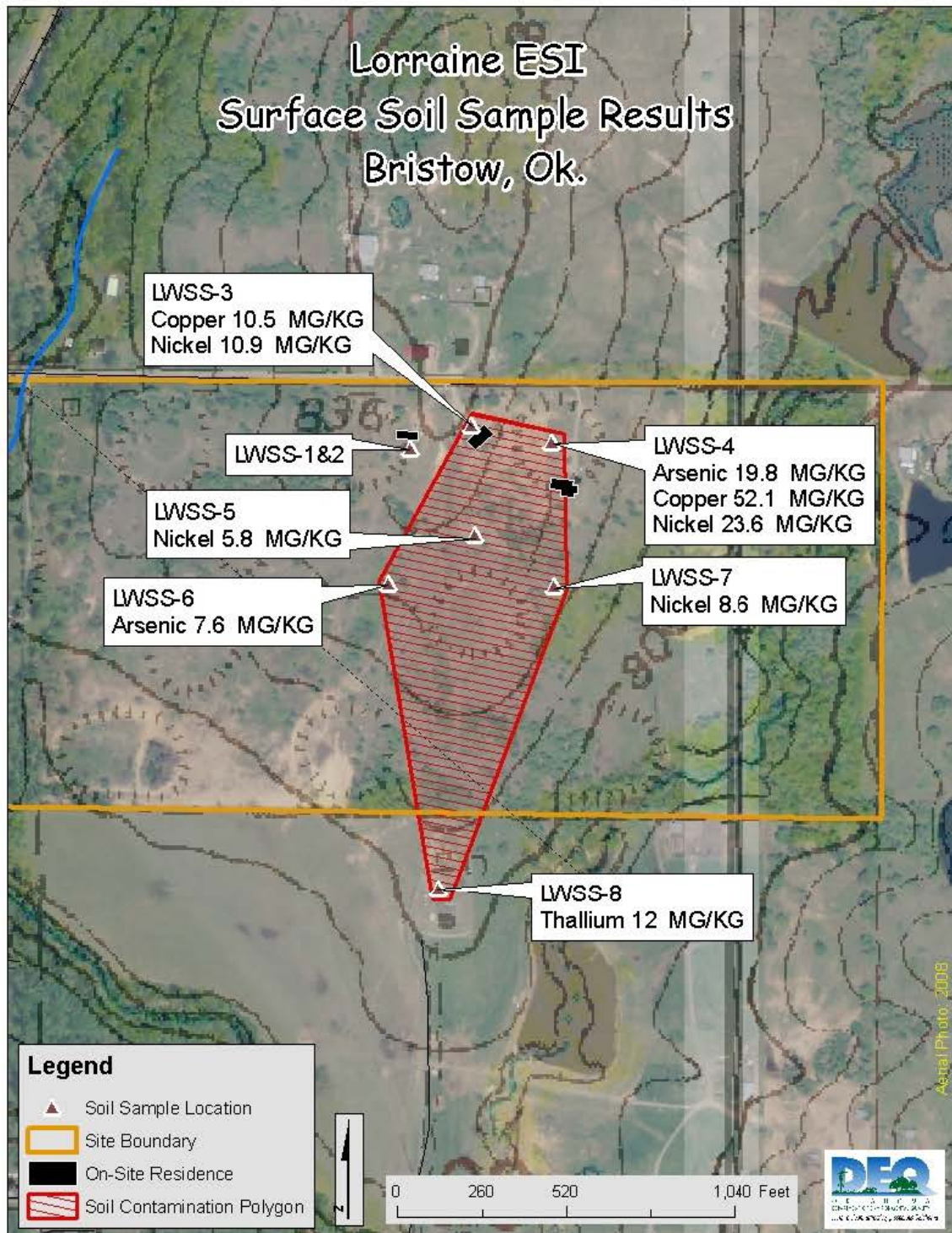
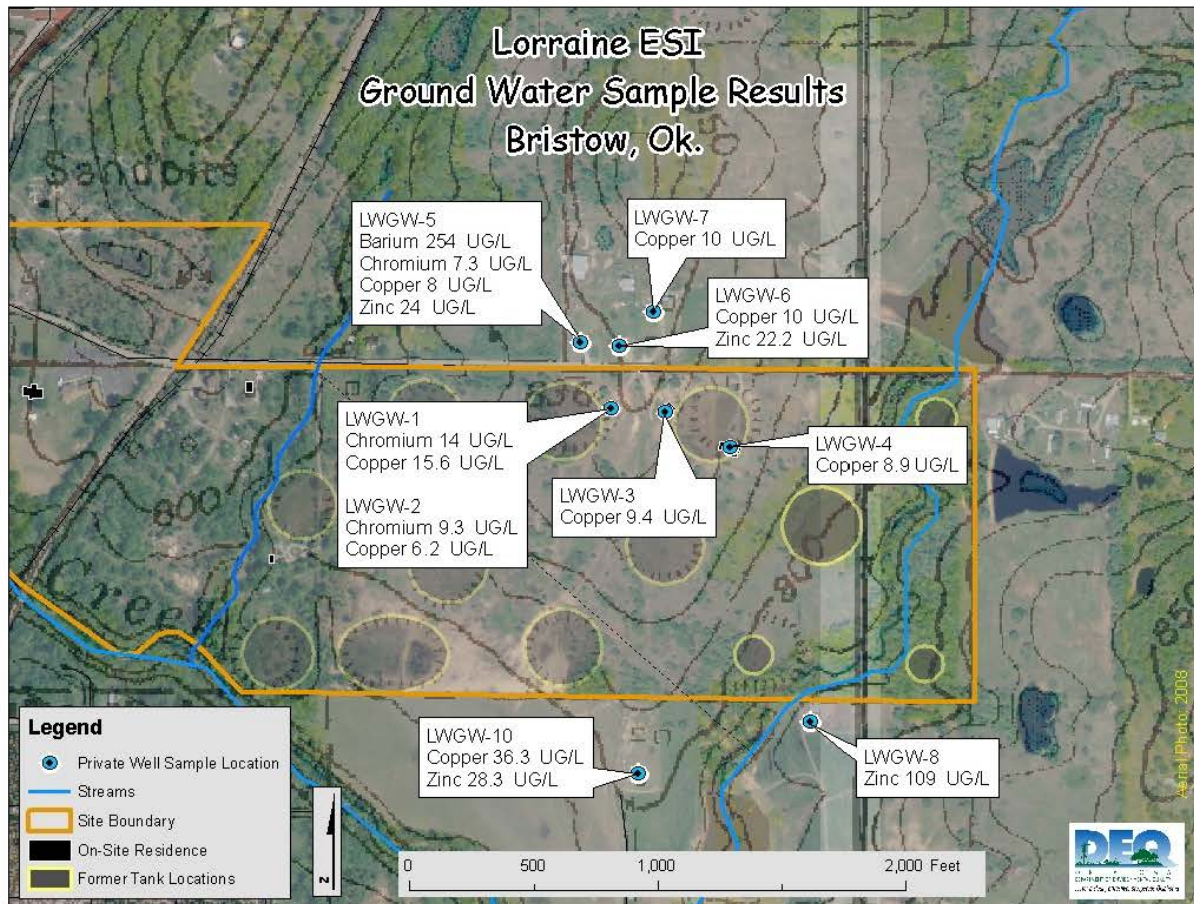




Figure 5: Area of Contaminated Soils Map

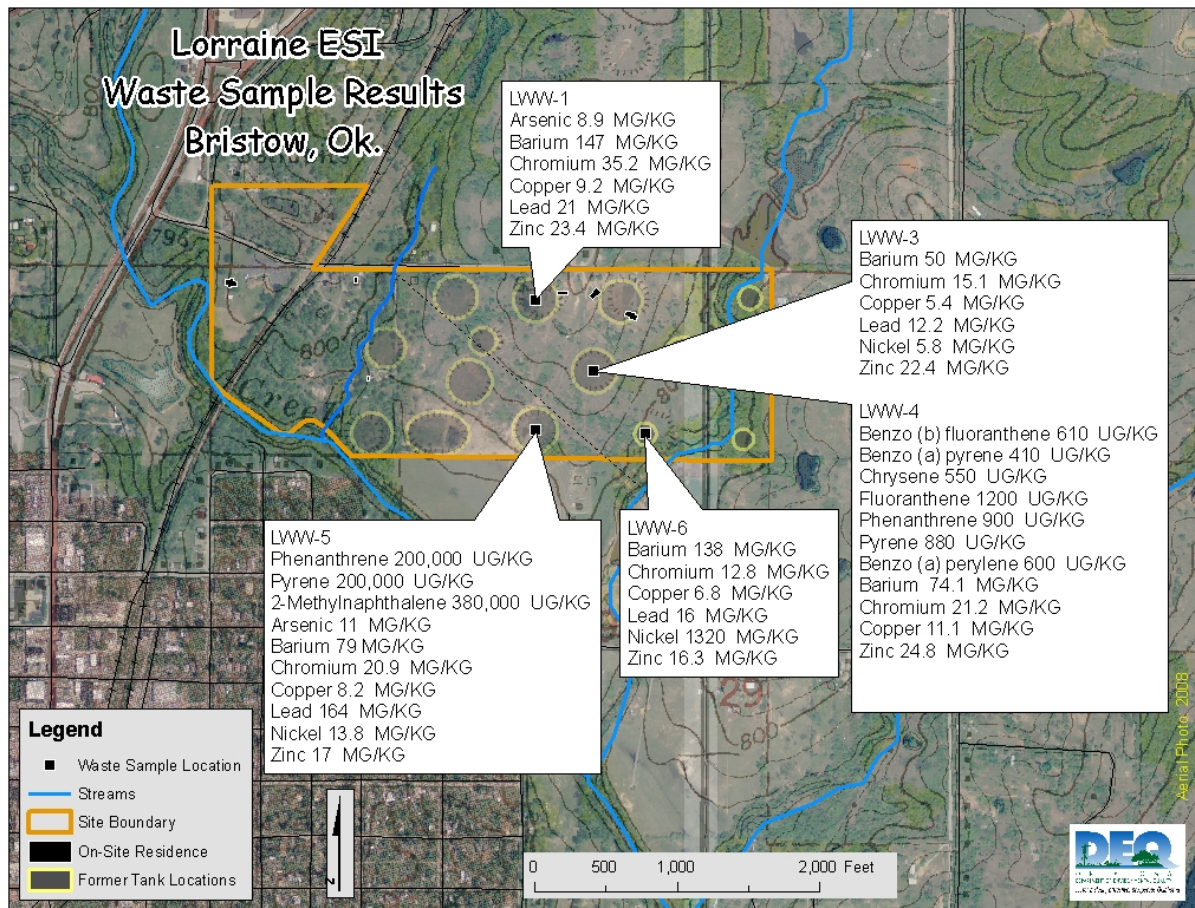


**Figure 6: Ground Water Sample Exceedances Map**





**Figure 7: Waste Sample Results Map**





## **Photo documentation**

Photo #1



Photographer: Todd Downham  
Date: 6/9/2010 Direction: North  
Comments: Surface Soil sample collection

Photo #2



Photographer: Todd Downham  
Date: 6/9/2010 Direction: Northwest  
Comments: Surface Soil sample collection



Photo #3



Photographer: Todd Downham  
Date: 6/9/2010 Direction: West  
Comments: Surface Soil sample collection

Photo #4



Photographer: Todd Downham  
Date: 6/9/2010 Direction: South  
Comments: Surface Soil sample collection



Photo #5



Photographer: Todd Downham  
Date: 6/9/2010 Direction: East  
Comments: Waste sample collection

## **REFERENCE LIST**

1. U.S. Environmental Protection Agency website, EPA, Envirofacts Warehouse, CERCLIS.
2. U. S. Environmental Protection Agency. *Guidance for Performing Site Inspections under CERCLA Interim Final*. EPA/540-R-92-021. September 1992.
3. State of Oklahoma, Department of Environmental Quality (ODEQ). *Quality Assurance Project Plan (QAPP) for Site Assessment Unit FFY-2010*. September 9, 2009.
4. Johnson, Donald L., U.S. Environmental Protection Agency, Region 6. *A letter to Gayle Bartholomew*. December 2<sup>nd</sup>, 2009.
5. ODEQ. *Site Inspection and Analysis Plan, Lorraine Refinery, Creek County, Oklahoma*. May 31<sup>st</sup>, 2010.
6. ODEQ. *Preliminary Assessment of the Wilcox Refinery, Creek County, Oklahoma*. December 15<sup>th</sup>, 1994
7. U. S. Environmental Protection Agency. *Expanded Site Inspection Report, Wilcox Oil Company, Bristow, Creek County, Oklahoma*. March 1997.
8. U. S. Environmental Protection Agency. *Site Assessment Report, Wilcox Refinery, Bristow, Creek County, Oklahoma*. March 1999.
9. ODEQ. *Preliminary Assessment Report, Lorraine Refinery, Bristow, Creek County, Oklahoma*. September 28<sup>th</sup>, 2008.
10. ODEQ. *Site Inspection Report, Lorraine Refinery, Bristow, Creek County, Oklahoma*. August 18<sup>th</sup>, 2009.
11. U.S Department of Agriculture. *Soil Survey of Creek County, Oklahoma*. May, 1959.
12. Sanborn AEF Map, Bristow, Oklahoma, October 1923, Sheet 19.
13. ODEQ. State Environmental Laboratory. *Quality Assurance Plan*. State Fiscal Year 2010. January 1, 2010.
14. ODEQ. State Environmental Laboratory. *Report of Analysis by Metal Laboratory. Report of Analysis by Gas Chromatograph with Mass Spectrometer detection (GCMS) Laboratory*. June 2010 – July, 2010.
15. Record of Communication with Steve McGuire, City of Bristow, Oklahoma. August 3, 2009.
16. ODEQ. Screening Level Database, February 25<sup>th</sup>, 2009.
17. ODEQ, Geographic Information System (GIS) Database, *ArcMap* version 9.3.
18. ODEQ. *Lorraine Refinery ESI, Site SI Field Logbook*. June 8<sup>th</sup>- 9<sup>th</sup>, 2010.

## **REFERENCES**



## **Reference 1**



## Superfund (CERCLIS)

You are here: [EPA Home](#) [Envirofacts](#) [CERCLIS](#) Query Results



### Query Results

Only CERCLIS facility information was searched to select facilities



**County Name:** creek  
**State Abbreviation:** ok  
**EPA Region Code:** 06

Results are based on data extracted on MAR-13-2009

**Note:** Click on the underlined CORPORATE LINK value for links to that company's environmental web pages.  
 Click on the underlined MAPPING INFO value to obtain mapping information for the facility.  
 Click on the underlined CERCLIS\_EPA\_ID value to view a detailed report for the facility.  
 Click on the underlined RECORD OF DECISION value for a RODS Site Report.  
 Click on the underlined "View Facility Information" link to view EPA Facility information for the facility.  
 Click on the underlined "Code/Descriptions" link to view OWNERSHIP codes and descriptions.

[Go To Bottom Of The Page](#)

#### Facility Information

CERCLIS EPA ID	Facility Information	SITE NAME	ADDRESS	COUNTY	SITE SMSA	FEDERAL FACILITY	NPL STATUS	CORPORATE LINK	MAPPING INFO	RECORD OF DECISION (ROD) INFO	EPA REGIONAL LINK	LATITUDE
<a href="#">OKN000606795</a>	<a href="#">View Facility Information</a>	CONDOR CUSTOM, INC.	INTERSECTION: 902 NORTH SMATHERS AVENUE DRUMRIGHT, OK 74030	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0000605169</a>	<a href="#">View Facility Information</a>	CREECO MILL AND ELEVATOR COMPANY	135 EAST 9TH STREET BRISTOW, OK 74010	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0000963389</a>	<a href="#">View Facility Information</a>	DRUMRIGHT STATION	2.6 MI. N. OF OILTON ON HWY99 DRUMRIGHT, OK 74030	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OKN000606909</a>	<a href="#">View Facility Information</a>	LORRAINE REFINERY SITE	ST. LOUIS/SAN FRANCISCO, SAND CREEK/HWY BRISTOW, OK	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0001327451</a>	<a href="#">View Facility Information</a>	NU-CHROME PLATING	501 SOUTH CHESTNUT BRISTOW, OK 74010	CREEK	8560	N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0001981349</a>	<a href="#">View Facility Information</a>	OHIO OIL REFINERY	.7 MI NE OF BRISTOW ON W. SIDE OF ST. BRISTOW, OK 74010	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0000605165</a>	<a href="#">View Facility Information</a>	OILTON AUTO PACK	411 WEST OAK STREET OILTON, OK 74052	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0000605158</a>	<a href="#">View Facility Information</a>	ONG KELLYVILLE	HWY 66 KELLYVILLE, OK	CREEK		N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0001325802</a>	<a href="#">View Facility Information</a>	TIDE WATER ASSOCIATED OIL COMPANY	SOUTH OF OHIO AVE. ON HWY 16 DRUMRIGHT, OK 74030	CREEK	8560	N	Not on the NPL	No	<a href="#">MAP</a>	No	No	
<a href="#">OK0001010917</a>	<a href="#">View Facility Information</a>	WILCOX OIL COMPANY	75 MILES NE OF BRISTOW BRISTOW, OK 74010	CREEK	8560	N	Not on the NPL	No	<a href="#">MAP</a>	No	No	

[Go To Top Of The Page](#)

Total Number of Facilities Displayed: 10

## **Reference 2**

**QUALITY ASSURANCE PROJECT PLAN  
FOR  
SITE ASSESSMENT UNIT  
Scope of Work  
FFY 2010**

STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND PROTECTION DIVISION  
SITE REMEDIATION SECTION  
SITE ASSESSMENT UNIT

Quality Management Plan EPA QTRAK # 09-039

**Title and Approval Sheet**

DEQ Site Assessment Unit Leader	_____ Hal Cantwell	_____ Date
DEQ Remediation Unit QA Coordinator	_____ Subi John	_____ Date
DEQ Quality Assurance Officer	_____ Karen Khalafian	_____ Date
DEQ Site Remediation Section Manager	_____ Amy Brittain	_____ Date
EPA-Region 6 Site Assessment Manager	_____ Philip Ofosu	_____ Date

September 4, 2009

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A5.	Problem Definition/Background	7	0
A6.	Project/Task Description	7	0
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#### **Appendices**

Appendix 1	SEL Documents
Appendix 2	CLP Documents
Appendix 3	References

### **A3. DISTRIBUTION LIST**

The following individuals will receive copies of the approved Quality Assurance Project Plan (QAPP).

#### **Site Assessment, Remediation, and Voluntary Cleanup Units Personnel:**

Located at: State of Oklahoma  
Department of Environmental Quality  
707 North Robinson, P.O. Box 1677  
Oklahoma City, Oklahoma 73101-1677

Hal Cantwell, Environmental Programs Specialist IV, (405) 702-5139\*  
Aron Samwel, Environmental Programs Specialist III, (405) 702-5123  
Sara Downard, Environmental Programs Specialist III, (405) 702-5126  
Amy Brittain, Environmental Programs Manager II, (405) 702-5133\*  
Subi John, Environmental Programs Specialist II, (405) 702-5131\*  
Christa Welch, Environmental Programs Specialist II, (405) 702-5137  
Todd Downham, Environmental Programs Specialist II, (405) 702-5136  
Jeannine Bennett, Engineer Intern IV, (405) 702-5127  
Jonathan Reid, Environmental Programs Specialist III, (405) 702-5121  
Kerry Paul, Environmental Programs Specialist I, (405) 702-5143

#### **DEQ Quality Assurance Officer:**

Located at: State of Oklahoma  
Department of Environmental Quality  
707 North Robinson, P.O. Box 1677  
Oklahoma City, Oklahoma 73101-1677

Karen Khalafian, Environmental Programs Manager I, (405) 702-5116\*

#### **EPA Region 6 Personnel:**

Located at: U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Philip Ofosu, Site Assessment Manager (6SF-TS), (214) 665-3178\*

\* indicates approving authority

### **Reference 3**



**QUALITY ASSURANCE PROJECT PLAN  
FOR  
SITE ASSESSMENT UNIT  
Scope of Work  
FFY 2010**

STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND PROTECTION DIVISION  
SITE REMEDIATION SECTION  
SITE ASSESSMENT UNIT

Quality Management Plan EPA QTRAK # 09-039

**Title and Approval Sheet**

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September 4, 2009

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Department of Environmental Quality  
707 North Robinson, P.O. Box 1677  
Oklahoma City, Oklahoma 73101-1677

Karen Khalafian, Environmental Programs Manager I, (405) 702-5116\*

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Located at: U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, Texas 75202-2733

Philip Ofosu, Site Assessment Manager (6SF-TS), (214) 665-3178\*

\* indicates approving authority

#### **Reference 4**



STATE OF OKLAHOMA  
OFFICE OF THE  
SECRETARY OF ENVIRONMENT

# Memorandum

December 15, 2009

To: Karen Khalafian, Oklahoma Department of Environmental Quality

From: Gayle Bartholomew *GB*

Re: Quality Management Plan (QMP) – QTRAK #10-026

---

The attached letter from U.S. EPA approves DEQ's Quality Management Plan effective December 2, 2009. Also attached is a copy of the fully executed signature page. The plan will remain in effect for one year from the date of Mr. Johnson's signature. Updates or a revised plan will be submitted to EPA in October 2010. If you have any questions or need additional information, please do not hesitate to contact me by phone at (405) 530-8996 or email [gnbartholomew@environment.ok.gov](mailto:gnbartholomew@environment.ok.gov).

Enc.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

December 2, 2009

Ms. Gayle Bartholomew  
Environmental Grants Administrator  
Office of the Secretary of Environment  
3800 North Classen Boulevard  
Oklahoma City, OK 73118

Dear Ms. Bartholomew:

The Region 6 Quality Assurance Staff has reviewed the updated Quality Management Plan (QMP) for the Oklahoma Department of Environmental Quality (ODEQ), which was assigned the QTRAK number 10-026. Since the QMP has only had minor changes since it was last approved, the QA Staff has recommended that the revised document be approved as submitted.

I have enclosed six originals of the QMP signature page, with my approval signature, for your and ODEQ's records. We appreciate your and ODEQ's efforts in keeping this document current. If you or ODEQ have any questions or concerns, Dr. Romig, who reviewed your QMP, may be reached at (214) 665-8346, or I may be reached at (214) 665-8343.

Sincerely yours,


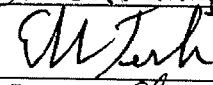
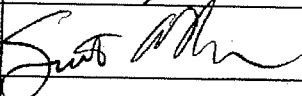
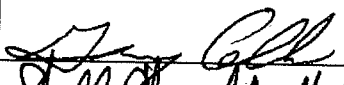

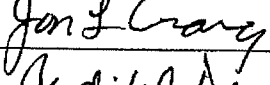
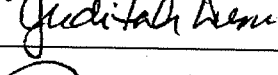
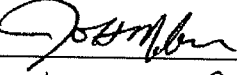


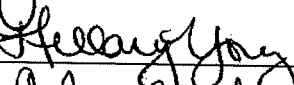
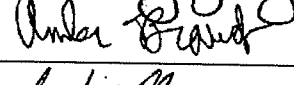
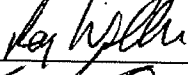
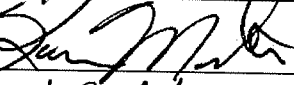

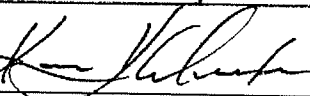
A handwritten signature in black ink, appearing to read "Donald L. Johnson".

Donald L. Johnson  
Region 6 Quality Assurance Manager


enclosures

cc: Kara Alexander (6WQ-AT)  
Mike Vaughan (6WQ-AP)  
QA Officers (6PD-D, 6EN-D, 6SF-D)

### APPROVALS

Name	Title	Division	Signature	Date
Steven A. Thompson	Executive Director			10-12-09
Eddie Terrell	Division Director	Air Quality		10-12-09
Scott Thompson	Division Director	Land Protection		10-12-09
Gary Collins	Division Director	Environmental Complaints & Local Services		10/12/09
Shellie Chard-McClary	Division Director	Administrative Services		10/12/09
Jon Craig	Division Director	Water Quality		10/12/09
Judith A. Duncan	Division Director	Customer Services		10-12-09
Joe Mashburn	QA Coordinator	Air Quality		10/12/09
Keisha Cornelius	QA Coordinator	Land Protection		10/12/09
Jeannine Bennett	QA Coordinator	Land Protection		10/12/09
Hillary Young	QA Coordinator	Land Protection		10-12-09
Amber Brawdy	QA Coordinator	Land Protection		10/12/09
Roy Walker	QA Coordinator	Administrative Services		10/12/09
Karen Miles	QA Coordinator	Water Quality		10/12/09
April Beltz	SEL QA Officer	Customer Services		10/12/09
Karen Khalafian	QA Officer	Land Protection		10/12/09

Kara Williams  
Environmental Programs Manager/QA Officer  
Office of the Secretary of Environment

  
Signature

10-22-09  
Date

Donald L. Johnson  
Region 6 Quality Assurance Manager  
U. S. Environmental Protection Agency

  
Signature

12/2/09  
Date

EPA QIPAK #: 10-024  
09052



### **Reference 5**

Expanded Site Inspection and Analysis Plan

Lorraine Refinery

Creek County, Oklahoma

CIRCLA #

OKN000606909

Date:

May 31<sup>st</sup>, 2010

State of Oklahoma

Department of Environmental Quality

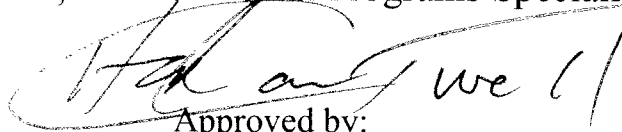
Prepared by:

Todd Downham, Environmental Programs Specialist II



Approved by:

Hal Cantwell, Environmental Programs Specialist IV



Approved by:

Philip Ofosu, EPA Region VI Site Assessment Manager

**Reference 6**

PRELIMINARY ASSESSMENT  
of the  
WILCOX OIL COMPANY

located in  
BRISTOW, CREEK COUNTY, OKLAHOMA

*STATE OF OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY*

Prepared by:



David A. Cates, Environmental Specialist

Reviewed by:



Rita Kottke, Senior Environmental Specialist

Approved by:



Hal Cantwell, Environmental Specialist Supervisor

December 15, 1994

**Reference 7**

**EXPANDED SITE INSPECTION REPORT**

**WILCOX OIL COMPANY  
BRISTOW, CREEK COUNTY, OK  
EPA CERCLA I.D. NO.: OKD001010917**

**RECEIVED**

**FEB 4 1998**

**WASTE MANAGEMENT  
DIVISION**

Prepared for

U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Contract No.: 68-W9-0015  
Work Assignment No.: 56-6JZZ  
Document Control No.: 04606-056-0093

Submitted by

Roy F. Weston, Inc.  
5599 San Felipe, Suite 700  
Houston, TX 77056  
(713) 621-1620

March 1997

### **Reference 8**



---

**Site Assessment Report  
for  
Wilcox Refinery  
Bristow, Creek County,  
Oklahoma**

---

Contract No. 68-W6-0013

March 1999

Prepared for:

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION 6**

1445 Ross Avenue  
Dallas, Texas 75202



**ecology and environment, inc.**

International Specialists in the Environment

1999 Bryan Street, Dallas, Texas 75201

Tel: (214) 245-1000, Fax: (214) 245-1001

09 060

## **Reference 9**

**PRELIMINARY ASSESMENT**  
**of the**  
**LORRAINE REFINERY SITE**  
**Located near**  
**BRISTOW, CREEK COUNTY, OKLAHOMA**

**September 28, 2008**

**STATE OF OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**Prepared by:**

**Vanessa Peterson, Land Protection Division Intern**



**Pamela Turner, Land Protection Division Intern**



**Reviewed by:**

**Karen Khalaflan, Environmental Programs Specialist III**

**Approved by:**



**Hal Cantwell, Environmental Programs Specialist IV**

**Reference 10**

**SITE INSPECTION REPORT  
LORRAINE REFINERY  
(Lorraine Refining Company)  
CREEK COUNTY, OKLAHOMA  
EPA CERCLIS ID # OKN000606909**

**August 18<sup>th</sup>, 2009**

**STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LAND PROTECTION DIVISION  
SITE ASSESSMENT UNIT**

**Prepared by:**

A handwritten signature in black ink, appearing to read "Todd Downham".

**Todd Downham, Environmental Programs Specialist II**

**Reviewed and Approved by:**

A handwritten signature in black ink, appearing to read "Hal Cantwell".

**Hal Cantwell, Environmental Programs Specialist IV**

## **Reference 11**

# SOIL SURVEY

---

## Creek County Oklahoma

---



UNITED STATES DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
In cooperation with the  
OKLAHOMA AGRICULTURAL EXPERIMENT STATION



massive to weakly granular structure; friable when moist, very hard and compact when dry; slightly acid.

18 to 24 inches, grayish-brown heavy clay, mottled with yellowish red and yellowish brown; weak blocky structure; very compact and very sticky when moist, extremely hard when dry; very slowly permeable; medium acid.

24 to 42 inches, mottled gray and light olive-brown heavy clay, very sticky and stiff when wet; very slowly permeable; slightly acid in upper part, neutral in lower part.

The thickness of the surface soil ranges from about 10 to 18 inches, and the texture ranges from very fine sandy loam to loam. On a few low sandy mounds the surface soil is fine sandy loam 18 to 30 inches thick. The subsoil ranges from dense clay to compact, slowly permeable sandy clay; in places it contains pockets and lenses of sandy loam.

*Use and management* (Capability unit IIs-1).—This soil is not susceptible to erosion. Fertility is low to moderate. The soil remains wet and cold late in the spring, and when it dries the surface soil crusts and bakes. If the soil is not worked at exactly the right moisture content, large clods form that make it very difficult to maintain a good seedbed.

This soil is not well suited to most common field crops, but it is moderately well suited to native hay or pasture. Most of it is now used for pasture. About one-third of the soil is used for crops, mostly cotton, corn, and sorghums. This soil is in the Claypan prairie range site.

#### **Oil-waste land**

**Oil-waste land (Oa).**—The areas mapped in this miscellaneous land type have been practically ruined for agricultural use by oil and salt-water waste from oil wells. They are more or less gullied and eroded and are almost bare of vegetation. They range in size from about one acre to several acres.

*Use and management* (Capability unit VIII).—This land is of no value for crops or pasture in its present condition. Some of the less strongly sloping and less severely gullied areas may eventually be revegetated by natural means if no more oil or salt-water waste is dumped on them.

#### **Okemah series**

These soils have developed from weakly alkaline shales and clays under a cover of grass in nearly level to gently sloping shallow valleys. They are moderately well drained, dark colored, and slightly acid. They have a dark-colored, crumbly and granular surface soil and upper subsoil. Their lower subsoil is mottled olive-yellow and gray compact clay.

Okemah soils are not mapped separately in Creek County. They are closely associated with soils of the Dennis series in some places and with soils of the Woodson series in others, and are mapped in units with soils of one or the other of these series. The Woodson soils differ from the Okemah soils in being dark gray and having a claypan. The Dennis soils, where they are associated with the Okemah soils, lie in slightly higher positions and have developed from less clayey materials. The Dennis soils are browner than the Okemah soils, and they have more rapid runoff and internal drainage.

A profile of an Okemah soil as mapped with the Woodson soils is described under Okemah and Woodson clay loams, and a profile of an Okemah soil as mapped with

Dennis soils is described under Dennis and Okemah loams, gently sloping.

**Okemah and Woodson clay loams** (0 to 1 percent slopes) (Ob).—These two soils occur intermixed in small areas or separately in areas of several acres. Woodson clay loam occupies the nearly level, usually lower-lying parts of shallow valleys, and Okemah clay loam the gently sloping, slightly higher surrounding areas, but the two soils are so closely associated that it is not practical to map them separately. They merge with little or no difference in surface appearance. The parent materials of both soils are olive or olive and yellow weakly alkaline clays and shales. The mapping unit occurs mostly in shallow valleys near Kiefer, Mounds, and Edna. Runoff is slow to moderate, and internal drainage is very slow. The native vegetation was tall grasses, mainly big bluestem, little bluestem, side-oats grama, and Indiangrass.

Profile of Okemah clay loam near Mounds in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 17, T. 16 N., R. 12 E.:

0 to 15 inches, dark-gray clay loam, lower part slightly mottled with brown; granular and friable when moist, very hard when dry; surface crusts in cultivated fields on drying; slightly acid.

15 to 20 inches, dark grayish-brown silty clay loam, slightly mottled with brownish yellow and strong brown; crumbly and friable when moist, sticky and plastic when wet; moderately permeable; slightly acid.

20 to 35 inches, mottled grayish-brown and light olive-brown heavy clay; very sticky and stiff when wet, extremely hard when dry; compact and very slowly permeable; neutral.

35 to 48 inches+, mottled light-gray and olive-yellow clay; very compact; very slowly permeable; weakly alkaline.

The texture of Okemah clay loam ranges from loam to clay loam. The depth to the heavy clay layer ranges from 18 to 25 inches. A few shotlike concretions of iron oxide occur in the two clay layers.

Profile of Woodson clay loam about 1 mile south of Kiefer in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 28, T. 17 N., R. 12 E.:

0 to 12 inches, dark-gray clay loam; the 6-inch plow layer is slightly lighter in color; crumbly and friable when moist, very hard when dry; surface crusts on drying; slightly acid.

12 to 22 inches, dark-gray heavy clay, faintly mottled with brown; very compact claypan; very sticky and stiff when wet; very slowly permeable; slightly acid to neutral.

22 to 38 inches, dark grayish-brown clay, mottled with yellowish brown; very compact; extremely hard when dry; very slowly permeable; weakly alkaline.

38 to 46 inches+, mottled gray, olive-brown, and yellowish-brown clay or shaly clay; contains a few crystals of gypsum and small shotlike concretions of iron oxide; alkaline but not calcareous.

The thickness of the surface soil ranges from 10 to 14 inches. Considerable mottling occurs in the upper subsoil in the areas that grade toward the Okemah soil.

Some small areas of Parsons silt loam near Kiefer are included in this mapping unit. These areas have a dark grayish-brown silt loam surface soil 12 inches thick, which rests on a mottled grayish-brown, strong-brown, and pale-yellow claypan subsoil. The Parsons soils are not extensive enough in Creek County to be mapped separately and are not described in this report.

*Use and management* (Capability unit I-4).—The two soils in this mapping unit are the darkest colored and finest textured soils of the prairies. They are the most fertile and productive soils for common field crops that occur in the uplands of this county. Okemah clay loam is slightly more productive than Woodson clay loam. Both soils have a moderately high water-holding capacity



These inclusions consist of 10 to 18 inches of light-brown fine sandy loam over dark grayish-brown silt loam or clay loam, overlain by recent deposits of lighter colored, sandier soil materials.

*Use and management* (Capability unit IIIw-1).—This soil is moderately productive. It is easily worked and fairly resistant to drought. It is not susceptible to erosion, but some material may be deposited on the surface by flood waters. Cropping is hazardous because most areas are flooded several times a year.

This soil is moderately well suited to crops and, in spite of the flood hazard, about one-fifth of the area is cropped. Cotton, corn, and sorghums are the chief crops. This soil is well suited to pasture, and about one-third is used for this purpose. Nearly half has been left in native forest. The soil is in the Loamy bottom-land range site.

### **Reinach series**

Soils of the Reinach series developed from alkaline to calcareous, reddish, silty to moderately sandy alluvium on low, nearly level stream terraces. They are moderately productive soils and easily worked. They are well suited to all general crops of this area, including alfalfa.

The Reinach soils have a brown to reddish-brown friable surface soil and a silty to moderately sandy subsoil. They are similar to the Yahola soils that occur on the present flood plains, but the Reinach soils lie a little higher and are above ordinary overflow. Their surface soil is darker than the Yahola surface soil, and is alkaline, though usually noncalcareous. Only one Reinach soil is mapped in Creek County.

**Reinach very fine sandy loam** (0 to 1 percent slopes) (Ra).—This soil occurs on low terraces or benches a few feet higher than the flood plains of the Cimarron River. It developed from reddish, silty to moderately sandy, alkaline, calcareous alluvial sediments. Prairie grasses and scattered elm, hackberry, pecan, and oak trees were the native vegetation. Runoff is slow, and internal drainage is moderate to rapid.

Profile of Reinach very fine sandy loam about 3½ miles north of Drumright on a low terrace of the Cimarron River:

0 to 14 inches, reddish-brown very fine sandy loam; the 6-inch plow layer is light reddish brown; weak granular structure; very friable; neutral.

14 to 46 inches+, light reddish-brown very fine sandy loam that contains thin strata of reddish-brown and brown silt loam in lower part; friable; very permeable; neutral.

The surface soil ranges from brown to light reddish brown in color and from fine sandy loam to silt loam in texture. Some small areas next to more strongly sloping Teller soils have an overwash of light-brown, slightly acid fine sandy loam, 4 to 10 inches thick.

*Use and management* (Capability unit I-1).—This soil is well suited to crops and pasture. Most of it is cultivated. Corn, cotton, sorghums, and alfalfa are the principal crops. This soil is easily worked and is not susceptible to erosion. It is in the Loamy bottom-land range site.

### **Roebuck series**

Soils of this series consist of only slightly modified clayey alluvium washed from prairie soils that developed over redbeds. The alluvial deposits are alkaline to weakly calcareous. The native vegetation was forest. Both

runoff and internal drainage are slow to very slow. Most areas are too poorly drained or too frequently flooded to be suitable for cropping unless artificially drained and protected from floods.

The surface soil is reddish brown. The subsoil is reddish clay, slightly mottled with brown and grayish brown. Roebuck clay is the only soil of this series that is mapped in Creek County.

**Roebuck clay** (0 to 1 percent slopes) (Rb).—This soil occupies parts of the flood plain of the Deep Fork River, where the channel is choked or partly filled by silting. It developed from clayey and silty, alkaline or calcareous, reddish alluvium. A native forest of elm, hackberry, oak, willow, pecan, and cottonwood covers these areas.

This is a poorly drained soil. Both runoff and internal drainage are very slow. The level flood plains are subject to frequent floods. This soil is not susceptible to erosion, but most areas are rapidly being covered with silt.

Profile of Roebuck clay:

0 to 20 inches, reddish-brown clay; moderately crumbly when moist, very sticky and plastic when wet; weakly alkaline.

20 to 45 inches+, reddish-brown heavy clay, slightly mottled with other shades of brown and some grayish brown; very sticky and stiff when wet, very hard when dry; slowly permeable; weakly calcareous.

Small areas have recent deposits of reddish-brown or brown, alkaline or calcareous, somewhat stratified clay loam and clay, 5 to 15 inches thick. In some places the subsoil below about 30 inches is stratified with brown clay loam and dark-gray calcareous clay.

*Use and management* (Capability unit Vw-1).—Nearly all of this soil is still in woodland. It is very fertile and would be highly productive if it were drained and protected from flooding, but drainage and flood protection are so difficult as to be almost impossible. Clearing underbrush and culling trees to allow native pecan orchards and bermudagrass pastures to develop may be practical. This soil is in the Heavy bottom-land range site.

### **Stephenville series**

Soils of this series are of medium depth over the parent materials of soft reddish sandstone or interbedded sandstone and sandy shale. They developed under a scrubby forest of mixed blackjack oak and post oak. Scattered coarse grasses grew in open areas.

These soils are slightly acid. They have a light-colored friable sandy surface layer and a yellowish-red or red friable sandy clay loam subsoil. The subsoil grades into the parent material, usually at a depth of less than 3 feet.

The Stephenville soils occupy nearly level to moderately sloping areas and are closely associated with the very shallow Darnell soils. The two soils are similar in surface appearance, but the Stephenville soils are 20 to 36 inches deep and the Darnell soils are 5 to 20 inches deep over sandstone. Sandstone outcrops are common in both.

In this county, the Stephenville soils are mapped only in units with the Darnell soils. The two series have similar uses and are about equal in productivity.

**Stephenville and Darnell fine sandy loams, gently sloping** (2 to 4 percent slopes) (Sa).—Stephenville fine sandy loam occupies about 70 percent of this mapping unit. Small areas of Darnell fine sandy loam make up the other 30 percent. This unit is very extensive in the central, southern, and western parts of the county.



These shallow to moderately deep upland soils developed over reddish-yellow to red sandstone or interbedded sandstone and sandy shale. The parent materials were slightly acid to neutral. The native vegetation was a thin to moderately thick forest of scrubby blackjack oak and post oak, and a thin ground cover of bluestem grasses. Both soils are well drained. Runoff is slow to moderate, but internal drainage is moderate to rapid.

Profile of Stephenville fine sandy loam, gently sloping, under a moderately thick cover of scrubby post oak and blackjack oak and bluestem grasses, about 2 miles east of Depew in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 9, T. 15 N., R. 8 E.:

- 0 to 4 inches, grayish-brown fine sandy loam; in plowed fields this layer is pale brown; weak granular structure; very friable; slightly acid.
- 4 to 12 inches, pale-brown light fine sandy loam; very friable when moist, nearly loose when dry; slightly acid.
- 12 to 28 inches, yellowish-red sandy clay loam; massive structure; crumbly and friable when moist, slightly sticky when wet; porous and permeable; medium acid.
- 28 to 35 inches, yellowish-red sandy clay loam, mottled with red; friable; permeable; contains small soft fragments of partly weathered sandstone; medium to slightly acid.
- 35 inches +, yellowish-red sandstone bedrock; slightly acid to neutral.

The depth to bedrock ranges from about 20 to 40 inches; normally it is less than 30 inches. A few small outcrops of the sandstone bedrock occur.

Profile of Darnell fine sandy loam in a cultivated field of about 2 percent slope, in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 16, T. 15 N., R. 8 E.:

- 0 to 10 inches, pale-brown light fine sandy loam; structureless; very friable when moist, nearly loose when dry; slightly acid.
- 10 to 16 inches, reddish-yellow fine sandy loam, slightly heavier in lower part; structureless; friable; lower part contains small fragments of partly weathered sandstone; medium acid.
- 16 inches +, reddish-yellow sandstone bedrock; neutral.

The depth of the Darnell soil ranges from about 5 to 20 inches. Most areas are between 8 and 15 inches deep. Small outcrops of sandstone bedrock occur here and there. The transition between the deeper Stephenville soil and the shallower Darnell soil is hardly noticeable; there is no change in slope or in color of the surface soil. Another profile of Darnell soil, as it typically occurs when associated with soils of the Pottsville series, is described under Darnell and Pottsville soils, sloping.

*Use and management* (Capability unit IIIe-2).—These soils are droughty and low in fertility. They are slightly to moderately susceptible to erosion if cultivated. Most of the cleared acreage has lost up to 20 percent of its surface soil through erosion. Some shallow gullies occur on the more strongly sloping cleared areas.

These soils are moderately well suited to crops and pasture. Yields are moderate under good management. Intensive management is needed to maintain or increase productivity.

About half of this mapping unit is cleared. Most of the cleared acreage has been abandoned for cropping, and it is now used for pasture. Cotton, peanuts, sorghums, corn, cowpeas, and sweetpotatoes are the principal crops. The pastures have a thin cover of three-awn grasses, bluestem grasses, and weeds. This unit is in the Sandy savanna range site. Nearly half of it is native woodland.

**Stephenville and Darnell fine sandy loams, sloping (4 to 7 percent slopes) (Sb).**—These soils are like Stephenville

and Darnell fine sandy loams, gently sloping, except that the surface soil is somewhat thinner, the bedrock is nearer the surface, and outcrops of sandstone are more common. About 60 percent of the acreage consists of Stephenville soils and about 40 percent of Darnell soils.

*Use and management* (Capability unit VIe-1).—This land is not well suited to crops. It is droughty, low in natural productivity, and highly erodible if cultivated. Moderate yields of common field crops are produced when the soils are first cultivated, but yields decline rapidly.

More than half of this mapping unit is still in woodland. The remainder has been cleared, but little is still used for crops. Cotton, corn, sorghums, peanuts, and cowpeas are grown. Yields are about three-fourths as much as on the gently sloping soils. Most of the acreage that was cleared, cultivated, and abandoned is now in pasture. The vegetation is three-awn grass and weeds. This unit is in the Sandy savanna range site.

If these soils are cultivated, very careful management is needed. They should be terraced, stripcropped, and contour-cultivated, and erosion-resistant crops should be planted. Areas where the soils are too shallow to be terraced should be used for pasture.

**Stephenville and Darnell fine sandy loams, sloping, severely eroded (4 to 7 percent slopes) (Sc).**—The soils in this mapping unit have been so severely eroded that they are worthless for crops. Originally, they were like Stephenville and Darnell fine sandy loams, sloping, but erosion has removed much of the surface soil. Numerous gullies are now active; some cannot be crossed with tillage implements.

*Use and management* (Capability unit VIIe-2).—These soils were never well suited to crops, and now they are of no value for crops. All of the acreage has been cultivated, but most of it is now idle or in pasture. A thin stand of annual grasses and weeds furnishes poor grazing. It would take careful management to establish even moderately good pastures. Cotton, corn, sorghums, cowpeas, and peanuts are still grown on a few acres, but yields are low. This mapping unit is in the Eroded savanna range site.

### **Stidham series**

The Stidham soils developed from acid sandy old alluvium on stream terraces under a mixed hardwood forest. They are low in natural fertility, but they are very responsive to management. They are well suited to fruits, special crops, and field crops.

Soils of this series have a light brownish-gray to pale-brown, friable, acid surface soil. The subsoil is yellowish-brown friable sandy clay loam, mottled with light gray and strong brown in the lower part.

Stidham soils are closely associated with Dougherty soils, which have a reddish subsoil, and with Eufaula soils, which have no loamy subsoil within 4 feet of the surface. In Creek County, the Stidham soils are not mapped separately. They are mapped in units with soils of the Dougherty series. A profile of a Stidham soil is described under Dougherty and Stidham fine sandy loams, nearly level.

### **Talihina series**

The Talihina soils developed from beds of slightly acid to neutral, gray, brown, and olive shale that included a little sandstone. They are very shallow, slightly acid



grasses and scattered elm, hackberry, and mesquite trees grew on these soils. Runoff is slow, and internal drainage is moderate. This soil is closely associated with Teller silt loam, nearly level, but it has a darker colored surface soil and a brown or yellowish-brown, instead of a red, subsoil.

Profile of Vanoss silt loam, nearly level, in a cultivated field about 3 miles east of Oilton in the NE $\frac{1}{4}$  sec. 34, T. 19 N., R. 7 E.:

- 0 to 16 inches, dark grayish-brown silt loam; the 6-inch plow layer is slightly lighter in color; moderate granular structure; friable when moist, hard when dry; neutral.
- 16 to 28 inches, dark-brown clay loam; medium granular structure; crumbly and friable when moist, hard when dry; permeable; neutral.
- 28 to 38 inches, brown clay loam, faintly mottled with strong brown; crumbly and friable; permeable; neutral.
- 38 to 48 inches +, yellowish-brown clay loam; slightly more friable and noticeably more sandy than layer above; neutral to weakly alkaline.

The surface soil ranges in color from very dark grayish brown in undisturbed areas to grayish brown in cultivated fields, and in texture from very fine sandy loam to heavy silt loam. In areas where this soil grades toward the Teller soils, the upper subsoil is brown and the lower subsoil is strong brown to reddish brown.

A few small level areas of Brewer silt loam are included in this mapping unit. These areas have a dark-gray silt loam surface soil 14 inches thick over a dark-gray crumbly clay subsoil. Brewer soils are not mapped separately in Creek County, and they are not described in this report.

*Use and management* (Capability unit I-3).—This is a moderately productive, easily worked soil. It responds well to good management, and it is not susceptible to erosion.

This soil is excellent for crops and well suited to pasture. About three-fourths of it is cultivated. The principal crops are cotton, corn, sorghums, and oats. The rest is used for pasture. This soil is in the Loamy prairie range site.

**Vanoss silt loam, gently sloping** (2 to 4 percent slopes) (Va).—This soil is similar to Vanoss silt loam, nearly level, but its slope makes it slightly susceptible to erosion if cultivated. It occurs in small areas in association with nearly level Vanoss and Teller soils.

*Use and management* (Capability unit IIe-1).—More than half of this soil is used for crops. The same crops are grown as on Vanoss silt loam, nearly level, but yields are slightly lower. Eroded areas are 10 to 20 percent less productive than the normal soil. Good management would restore the original productivity in 2 or 3 years. This soil is in the Loamy prairie range site.

### Verdigris series

These soils occupy the flood plains of streams. The alluvium from which they developed came mostly from dark soils of the prairies; some came from light-colored soils. Soils of this series are moderately well drained, but they are flooded occasionally to frequently. The periodic floods do not prevent successful cultivation except in the narrow flood plains of small streams.

These soils have a dark grayish-brown, friable, slightly acid surface soil and a dark grayish-brown clay loam subsoil. The subsoil is slightly mottled and somewhat finer textured in the lower part. Verdigris soils are

darker colored than the Pulaski soils and have more retentive, less sandy subsoils. They are similar to the Mason soils, which lie slightly higher and are above ordinary overflow.

**Verdigris fine sandy loam** (0 to 1 percent slopes) (Vd).—This soil occupies parts of narrow flood plains, mainly in the central and western parts of the county. The parent materials were slightly acid to weakly alkaline alluvial sediments, most of which were washed from dark soils of the prairie; some were derived from light-colored soils of forested areas. Runoff is slow, and internal drainage is moderate. These soils are flooded for short periods several times a year. Fresh alluvial sediments are deposited on most areas during floods. Native forests of elm, hackberry, oak, pecan, and cottonwood grew on these soils, and some coarse grasses and shrubs covered the ground.

Profile of Verdigris fine sandy loam:

- 0 to 14 inches, grayish-brown fine sandy loam, weakly stratified in lower part with dark grayish-brown silt loam; very friable when moist; slightly acid.
- 14 to 32 inches, dark grayish-brown clay loam; crumbly and friable when moist, moderately sticky when wet; slightly acid to neutral.
- 32 to 50 inches +, dark grayish-brown clay loam, mottled or splotted with light brown; contains thin seams or lenses of light-brown fine sandy loam below about 40 inches; neutral.

Most areas of this soil are covered by recent alluvium, 5 to 15 inches thick. This alluvium ranges from brown to dark grayish brown in color. The texture is fine sandy loam. It is somewhat stratified below plow depth. The clay loam subsoil is dark gray or dark grayish brown in most places.

*Use and management* (Capability unit I-2).—This is a moderately productive soil. It is likely to be flooded late in spring; consequently, cropping is uncertain. This soil does not erode, but a considerable amount of soil material is deposited by floodwater. Areas where floods are least frequent are well suited to crops. Corn, cotton, and sorghums are the most common crops. The soil is also well suited to pasture. Two-thirds of the acreage has been cleared for crops and pasture, and one-third is still under native forest. This soil is in the Loamy bottom-land range site.

**Verdigris silt loam** (0 to 1 percent slopes) (Ve).—This soil is mapped on flood plains of streams throughout the county. The parent material consisted of slightly acid to weakly alkaline alluvial sediments washed from dark soils of the prairies. The native vegetation was a hardwood forest of elm, oak, hackberry, cottonwood, and pecan trees, and scattered coarse grasses. Runoff is slow, and internal drainage is moderate. This soil is flooded one to three times a year; nevertheless, most of it can be successfully cropped.

Profile of Verdigris silt loam in a cultivated field about 4 miles west of Bristow in the SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 34, T. 16 N., R. 8 E.:

- 0 to 16 inches, dark grayish-brown silt loam; friable and easily worked when moist, hard when dry; slightly acid.
- 16 to 36 inches, dark grayish-brown clay loam, faintly mottled with brown in the lower part; crumbly and friable when moist, hard when dry; porous and permeable; slightly acid to neutral.
- 36 to 46 inches +, dark grayish-brown clay loam, splotted or mottled with brown and gray; friable; permeable; weakly alkaline.



The surface layer is 10 to 20 inches thick. In some places the lower part of this layer is weakly stratified with fine sandy loam and clay loam. The subsoil is slightly acid to weakly alkaline. Stratified darker colored and lighter colored sediments may occur in the lowest layer.

*Use and management* (Capability unit I-2).—This soil is well suited to crops or pasture. It is somewhat more productive than Verdigris fine sandy loam. It is not susceptible to erosion, but soil material may be deposited on the surface by floods. The flood-deposited material replenishes the supply of plant nutrients. About one-fourth of this soil is still under native forest. Half of the remainder is cropped, mostly to corn, cotton, sorghums, and alfalfa. Yields range from almost complete failures to very high yields. Some of the soil is in pasture. This soil is in the Loamy bottom-land range site.

**Verdigris clay loam** (0 to 1 percent slopes) (Vc).—This soil occurs on the wider flood plains of the larger creeks of the county. The alluvial sediments from which it developed are slightly acid to weakly alkaline. They were washed from dark-colored soils of the prairies. Runoff is slow, and internal drainage is moderate. The native vegetation was a forest of elm, hackberry, ash, oak, pecan, and cottonwood, and coarse grasses.

Profile of Verdigris clay loam about  $\frac{1}{2}$  mile southeast of Sapulpa in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 6, T. 17 N., R. 12 E.:

- 0 to 20 inches, dark grayish-brown clay loam; moderately granular structure; crumbly and friable when moist, hard when dry; porous; slightly acid.
- 20 to 38 inches, grayish-brown clay loam, slightly mottled with brown and some pale brown; friable; permeable; slightly acid.
- 38 to 46 inches +, grayish-brown clay loam, mottled with other shades of brown; contains pockets and thin seams of brown fine sandy loam; slightly acid.

The color of the surface layer ranges from very dark brown in undisturbed areas to dark grayish brown or dark brown where cultivated. Small areas have a 3- to 5-inch layer of grayish-brown loam that has been deposited on the surface by floodwaters.

*Use and management* (Capability unit I-2).—This is a highly productive soil. Most of the areas are flooded one to three times a year, but this does not prevent their use for cultivated crops. This soil is not susceptible to erosion, but on most areas soil material is deposited during floods.

About one-third of this soil is cultivated. Corn, cotton, and sorghums are the principal crops. About one-fourth is in woodland. The rest is idle or used for pasture. This soil is in the Loamy bottom-land range site.

### Woodson series

These are claypan soils that developed from alkaline or weakly calcareous shales and clays on nearly level to gently sloping prairies. They occupy small nearly level areas in gently sloping shallow valleys. These soils are dark grayish brown to dark gray. They are slightly acid.

Woodson soils are closely associated with soils of the Okemah series. The two series differ little in surface appearance. The Woodson soils have a thinner and more granular surface soil than the Okemah soils, and they have a dark-gray claypan subsoil. Woodson soils are not mapped separately in this county. Areas of Woodson clay loam are included in Okemah and Woodson clay loams, and a profile of the Woodson soil is described under that unit.

### Yahola series

These soils occur on the flood plains of the Deep Fork and Cimarron Rivers and other large streams. The parent material was alluvium derived from grassland soils underlain by redbeds. Soils of the Yahola series have a reddish-brown alkaline or calcareous surface soil and a moderately sandy subsoil.

These soils are moderately to highly productive. Areas that are not flooded too often are well suited to general field crops. Yahola soils are similar to Port soils in surface appearance, but they have a sandier subsoil. They are more alkaline than Pulaski soils. Yahola soils have a sandier subsoil and more rapid internal drainage than the Roebuck soils.

**Yahola very fine sandy loam** (0 to 1 percent slopes) (Yb).—This soil occurs on the flood plains of the Cimarron and Deep Fork Rivers. It developed from calcareous or alkaline sandy alluvial sediments washed from prairies underlain by redbeds. Runoff is slow to moderate, and internal drainage is moderate to rapid. All areas of this soil are periodically flooded. Those on the flood plain of the Deep Fork River are too frequently flooded to be suitable for crops, and they have been left in native hardwood forest. The native vegetation was a forest of elm, ash, oak, cottonwood, and pecan trees. Coarse grasses grew where the forest was thin.

Profile of Yahola very fine sandy loam about  $\frac{1}{2}$  mile north of Oilton in the NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 28, T. 19 N., R. 7 E.

- 0 to 16 inches, reddish-brown very fine sandy loam; structureless; very friable; alkaline but not calcareous.
- 16 to 46 inches +, reddish-yellow light fine sandy loam, weakly stratified in the lower part with loamy fine sand; very friable and freely permeable; alkaline but not calcareous.

The surface soil is alkaline or calcareous. In color it ranges from light brown to reddish brown and in texture from fine sandy loam to silt loam. Small areas where floodwaters have recently deposited sediments may be weakly stratified.

*Use and management* (Capability unit I-2).—This soil is easily worked and moderately productive. Areas that are not flooded too often are well suited to crops. The soil is not susceptible to erosion. It receives fresh deposits of soil material during floods.

All of the cropland is on the flood plain of the Cimarron River. Cotton, corn, and sorghums are the principal crops. This soil is in the Loamy bottom-land range site.

**Yahola clay loam** (0 to 1 percent slopes) (Ya).—This soil developed from reddish, calcareous, sandy alluvium on the flood plains of the Deep Fork and Cimarron Rivers. The native vegetation was a forest of elm, hackberry, oak, pecan, cottonwood, and ash. Coarse grasses grew where the forest was thin. Runoff is slow but internal drainage is rapid through the sandy substratum.

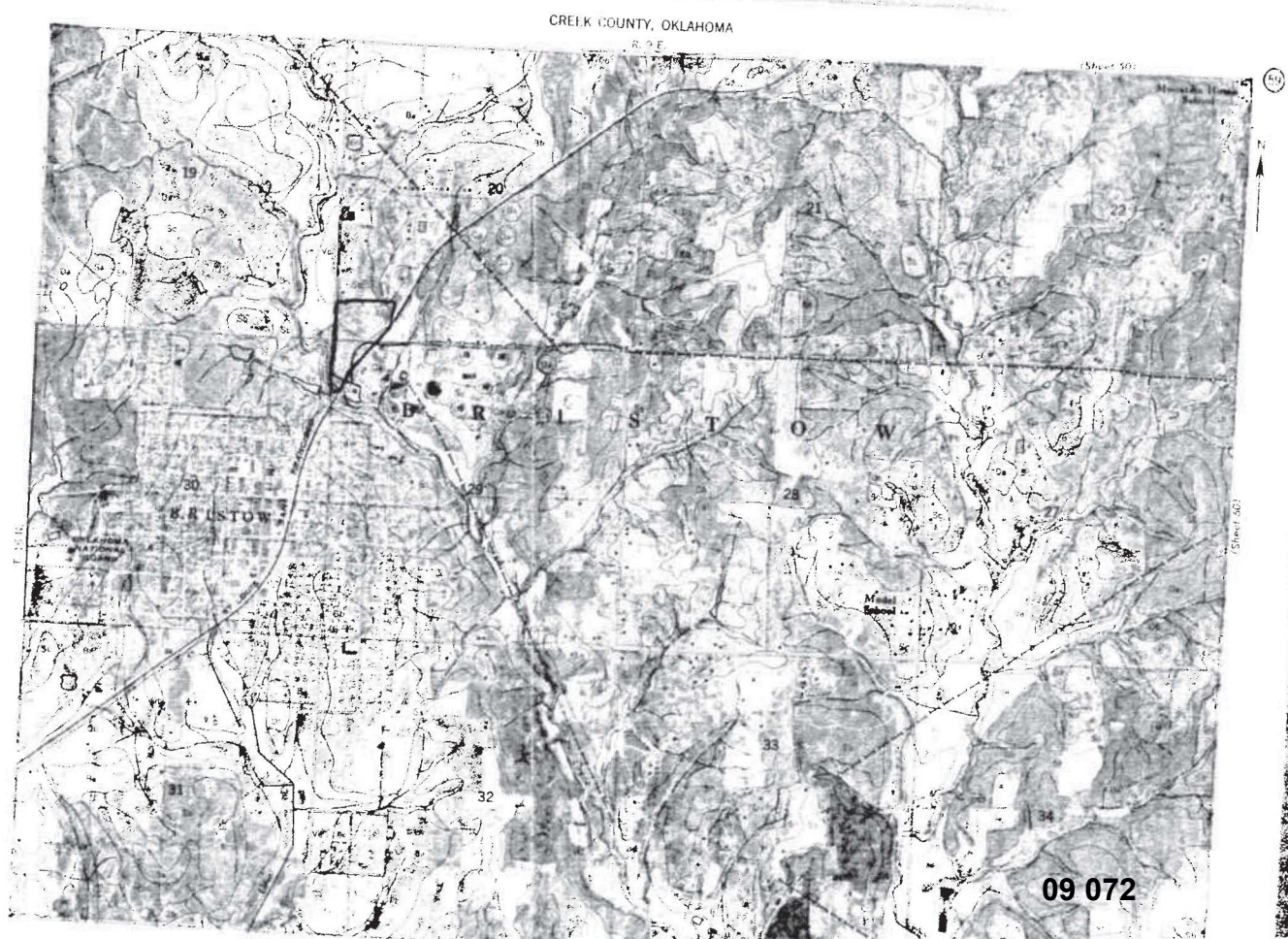
This soil is associated with Yahola very fine sandy loam. It is like that soil except for having a finer textured surface soil.

Profile of Yahola clay loam:

- 0 to 14 inches, reddish-brown clay loam; crumbly and friable when moist, moderately sticky when wet; alkaline and weakly calcareous.
- 14 to 45 inches +, reddish-yellow very fine sandy loam, weakly stratified in lower part with loamy sands and clay loam; very permeable; weakly calcareous.



-Oa  
-Ve  
-St



WORKS AND

SOILS LEGEND

SYMBOL

NAME

Ba	Bates fine sandy loam, gently sloping
Bb	Bates fine sandy loam, sloping
Bc	Bates fine sandy loam, sloping, severely eroded
Bd	Broken or gullied sandy upland
Ca	Choteau very fine sandy loam, gently sloping
Cb	Choteau very fine sandy loam, nearly level
Cc	Cleburnes fine sandy loam
Cd	Collinsville and Bates soils, gently sloping
Ce	Collinsville and Talihina soils, sloping
Cf	Collinsville and Talihina soils, strongly sloping
Da	Darnell and Pottsville soils, sloping
Db	Darnell and Pottsville soils, strongly sloping
Dc	Dennis and Okemah loams, gently sloping
Dd	Dennis and Okemah loams, sloping
De	Dennis and Okemah loams, sloping, severely eroded
Df	Dougherty and Stidham fine sandy loams, gently sloping
Dg	Dougherty and Stidham fine sandy loams, nearly level
Dh	Dougherty and Stidham fine sandy loams, sloping
Dk	Dougherty and Stidham loamy fine sands, gently sloping
Di	Dougherty and Stidham loamy fine sands, nearly level
Ea	Eufaula loamy fine sand, gently sloping
Eb	Eufaula loamy fine sand, strongly sloping
Ga	Gullied bottom land
Ma	Mason clay loam
Mb	Mason silt loam
Na	Neosho silt loam
Ca	Oil-waste land
Ob	Okemah and Woodson clay loams
Pa	Port clay loam
Pb	Pulaski fine sandy loam
Ra	Reinach very fine sandy loam
Rb	Roebuck clay
Sa	Stephenville and Darnell fine sandy loams, gently sloping
Sb	Stephenville and Darnell fine sandy loams, sloping
Sc	Stephenville and Darnell fine sandy loams, sloping, severely eroded
Ta	Teller silt loam, gently sloping
Tb	Teller silt loam, nearly level
Tc	Teller silt loam, sloping
Va	Vanoss silt loam, gently sloping
Vb	Vanoss silt loam, nearly level
Vc	Verdigris clay loam
Vd	Verdigris fine sandy loam
Ve	Verdigris silt loam
Wa	Riverwash
Ya	Yahola clay loam
Yb	Yahola very fine sandy loam

Roads

Good motor .....

Poor motor .....

Trail .....

Marker, U. S. ....

Railroads

Single track .....

Multiple track .....

Abandoned .....

Bridges and crossings

Road .....

Trail, foot .....

Railroad .....

Ferry .....

Ford .....

Grade .....

R. R. over .....

R. R. under .....

Tunnel .....

Buildings

School .....

Church .....

Station .....

Mine and Quarry

Shaft .....

Dump .....

Prospect .....

Pits, gravel or other .....

Power line .....

Pipeline .....

Cemetery .....

Dam .....

Levee .....

Tank .....

Oil well .....

Windmill .....

Canal lock .....



## **Reference 12**

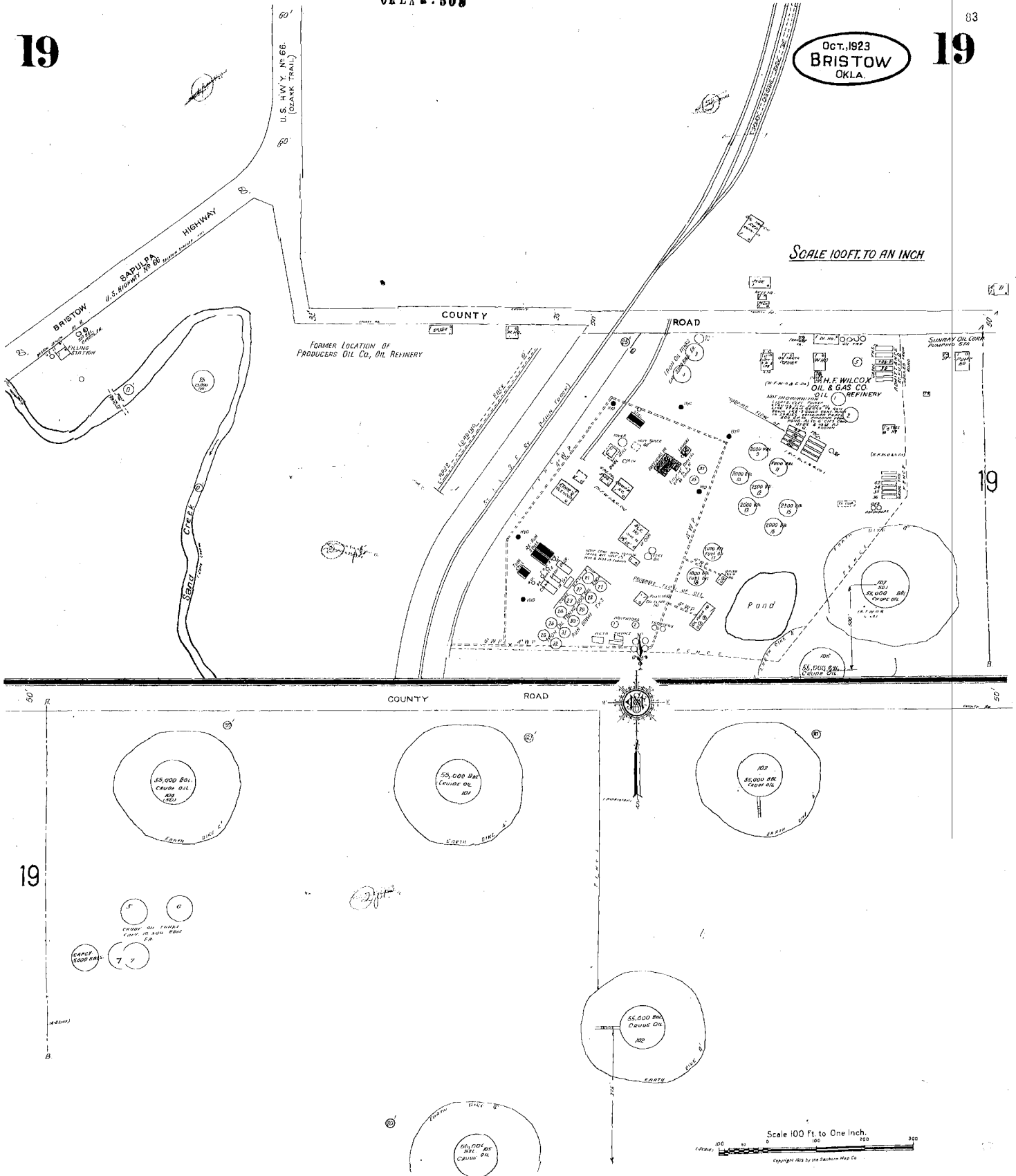
19

OKLA. 508

OCT. 1923  
BRISTOW  
OKLA.

19

SCALE 100 FT. TO AN INCH



09 075

### **Reference 13**

# QUALITY ASSURANCE PLAN

## STATE ENVIRONMENTAL LABORATORY DEPARTMENT OF ENVIRONMENTAL QUALITY



Effective: February 15, 2010

707 N. ROBINSON, P.O. BOX 1677  
OKLAHOMA CITY, OK 73101-1677  
(405) 702-1000



# **QUALITY ASSURANCE PLAN**

---

## **STATE ENVIRONMENTAL LABORATORY DEPARTMENT OF ENVIRONMENTAL QUALITY**

Effective: February 15, 2010

Release Date: February 15, 2010



**707 N. ROBINSON  
P.O. BOX 1677  
OKLAHOMA CITY, OK 73101-1677  
(405) 702-1000**

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### **METHOD, CONTAINER, PRESERVATIVE, AND HOLDING TIMES**

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- 4-2: Inorganics and Metals, Non-Drinking Water Program
- 4-3: Microbiology
- 4-4: Organic Contaminants, Drinking Water Program
- 4-5: Organic Contaminants, Non- Drinking Water Program

### **METHOD REFERENCES**

- 7-2: Inorganics
- 7-3: Radiochemistry
- 7-4: Metals
- 7-5: Microbiology
- 7-6: Organics

### **STANDARD OPERATING PROCEDURES**

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- 7-9: Non-PWS

## **APPENDIX G- AGENCY ORGANIZATIONAL CHARTS**

## **APPENDIX H- BOTTLE REQUEST FORM**

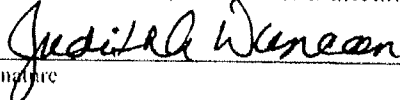
## **APPENDIX I- METHOD AND PARAMETER TABLES**

## **APPENDIX J- QUALIFIER TABLE**

## PLAN APPROVAL SIGNATURES

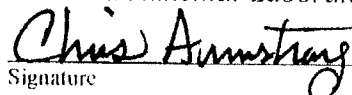
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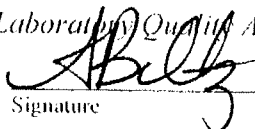
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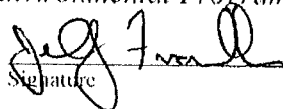
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2/23/2010  
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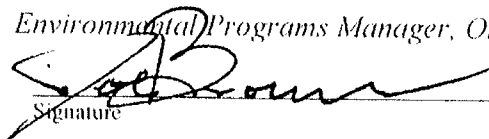
### STATE ENVIRONMENTAL LABORATORY

Environmental Programs Manager, Inorganics Group, Jeff Franklin

  
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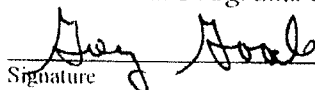
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Environmental Programs Manager, Organics Group, Joe Brown

  
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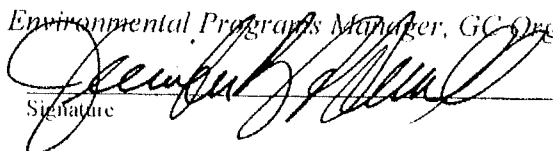
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Signature

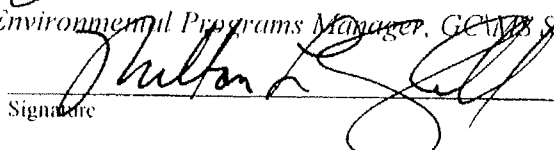
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Date

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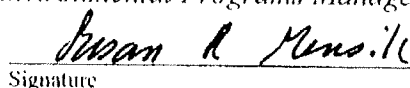
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Environmental Programs Manager, GC Metals Section, Milton L. Campbell

  
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2-23-2010  
Date

Environmental Programs Manager, General Chemistry Section, Susan Mensik

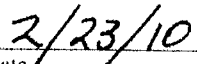
  
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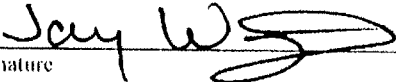
## LABORATORY CUSTOMER ASSISTANCE

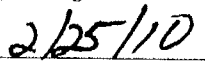
*Environmental Programs Manager, Laboratory Customer Assistance, Roche Amonette*

  
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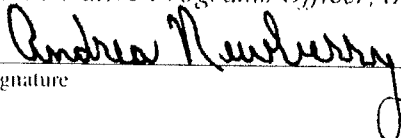
  
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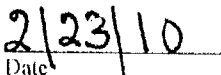
*Environmental Programs Manager, Laboratory Customer Assistance, Jay Wright*

  
Signature

  
Date

*Administrative Programs Officer, Statewide Sample Management Unit, Andrea Newberry*

  
Signature

  
Date

## **Reference 14**

# **Groundwater SVOCs (LWGW 1-10)**

Sample Number: 485629  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 07/14/2010  
 Collected By:  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/16/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

*LW6W-10*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabi		1.12				
Acenaphthylene	<	11	UG/L	07/08/10	8270DM	
Acenaphthene	<	11	UG/L	07/08/10	8270DM	
Anthracene	<	11	UG/L	07/08/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	07/08/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	07/08/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	07/08/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	07/08/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	07/08/10	8270DM	
Bis(2-chloroisopropyl)ether	<	11	UG/L	07/08/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	07/08/10	8270DM	
Chrysene	<	11	UG/L	07/08/10	8270DM	
Diethylphthalate	<	11	UG/L	07/08/10	8270DM	
Dimethylphthalate	<	11	UG/L	07/08/10	8270DM	
Fluoranthene	<	11	UG/L	07/08/10	8270DM	
Fluorene	<	11	UG/L	07/08/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	07/08/10	8270DM	
Hexachloroethane	<	11	UG/L	07/08/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	07/08/10	8270DM	
Isophorone	<	11	UG/L	07/08/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	07/08/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	07/08/10	8270DM	
Nitrobenzene	<	11	UG/L	07/08/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	07/08/10	8270DM	
Phenanthrene	<	11	UG/L	07/08/10	8270DM	
Pyrene	<	11	UG/L	07/08/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	07/08/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	07/08/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	07/08/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	07/08/10	8270DM	
2-Chlorophenol	<	11	UG/L	07/08/10	8270DM	
2-Nitrophenol	<	11	UG/L	07/08/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	07/08/10	8270DM	



Sample Number: 485629  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/9/2010  
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 Location Code:  
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**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
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**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	07/08/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	07/08/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	07/08/10	8270DM	
2,4-Dinitrophenol	<	56	UG/L	07/08/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	07/08/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	07/08/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	07/08/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	07/08/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	07/08/10	8270DM	
4-Nitrophenol	<	56	UG/L	07/08/10	8270DM	
4,6-Dinitro-o-cresol	<	56	UG/L	07/08/10	8270DM	
Phenol	<	11	UG/L	07/08/10	8270DM	
Naphthalene	<	11	UG/L	07/08/10	8270DM	
Pentachlorophenol	<	56	UG/L	07/08/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	07/08/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	07/08/10	8270DM	
Hexachlorobenzene	<	11	UG/L	07/08/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	07/08/10	8270DM	
Dibenzofuran	<	11	UG/L	07/08/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	07/08/10	8270DM	
2-Methylphenol	<	11	UG/L	07/08/10	8270DM	
4-Methylphenol	<	11	UG/L	07/08/10	8270DM	
2,4,5-Trichlorophenol	<	56	UG/L	07/08/10	8270DM	
4-Chloroaniline	<	11	UG/L	07/08/10	8270DM	
2-Nitroaniline	<	56	UG/L	07/08/10	8270DM	
3-Nitroaniline	<	56	UG/L	07/08/10	8270DM	
4-Nitroaniline	<	56	UG/L	07/08/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		43
PHENOL-D5		28
2-FLUOROBIPHENYL		82
2,4,6-TRIBROMOPHENOL		57

Sample Number: 485629  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
Date Received: 6/10/2010  
Date Completed: 07/14/2010  
Collected By:  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/16/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		99
NITROBENZENE-D5		78

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Tetracosane		14	µg/L
Pentacosane		12	µg/L
dihexyl phthalate		660	µg/L

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-10

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485380  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LW6W-9*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabl		1.08				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ethe	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	

Sample Number: 485380  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	54	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	54	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	54	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	54	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	54	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	54	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		69
2-FLUOROBIPHENYL		58
2-FLUOROPHENOL		31
PHENOL-D5		20

Sample Number: 485380  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		62
2,4,6-TRIBROMOPHENOL		48

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWCW-9

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485372  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1105  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LW6W-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabl		1.08				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ethe	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	

Sample Number: 485372  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1105  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	54	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	54	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	54	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	54	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	54	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	54	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2,4,6-TRIBROMOPHENOL		63
2-FLUOROBIPHENYL		59
P-TERPHENYL-D14		74
PHENOL-D5		22

Sample Number: 485372  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1105  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		33
NITROBENZENE-D5		70

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWCW-1

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas



Sample Number: 485373  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1110  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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LW6W-2

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabi		1.02				
Acenaphthylene	<	10	UG/L	06/10/10	8270DM	
Acenaphthene	<	10	UG/L	06/10/10	8270DM	
Anthracene	<	10	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ether	<	10	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	10	UG/L	06/10/10	8270DM	
Chrysene	<	10	UG/L	06/10/10	8270DM	
Diethylphthalate	<	10	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	10	UG/L	06/10/10	8270DM	
Fluoranthene	<	10	UG/L	06/10/10	8270DM	
Fluorene	<	10	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	10	UG/L	06/10/10	8270DM	
Hexachloroethane	<	10	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	10	UG/L	06/10/10	8270DM	
Isophorone	<	10	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	10	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	10	UG/L	06/10/10	8270DM	
Nitrobenzene	<	10	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	10	UG/L	06/10/10	8270DM	
Phenanthrene	<	10	UG/L	06/10/10	8270DM	
Pyrene	<	10	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	10	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	10	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	10	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	10	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	10	UG/L	06/10/10	8270DM	

Sample Number: 485373  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1110  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	51	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	20	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	51	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	51	UG/L	06/10/10	8270DM	
Phenol	<	10	UG/L	06/10/10	8270DM	
Naphthalene	<	10	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	51	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	10	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	10	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	10	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	10	UG/L	06/10/10	8270DM	
Dibenzofuran	<	10	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Methylphenol	<	10	UG/L	06/10/10	8270DM	
4-Methylphenol	<	10	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	51	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	10	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	51	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	51	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	51	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		61
NITROBENZENE-D5		70
2,4,6-TRIBROMOPHENOL		30
PHENOL-D5		23

Sample Number: 485373  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1110  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		74
2-FLUOROPHENOL		36

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWCW-2

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485374  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1130  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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**EPA Drinking Water Certification #OK00013**

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LW6W-3

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		1.10				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ether	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	

Sample Number: 485374  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1130  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

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To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	55	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	55	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	55	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	55	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	55	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	55	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	55	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	55	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		57
2-FLUOROBIPHENYL		50
PHENOL-D5		19
2,4,6-TRIBROMOPHENOL		52

Sample Number: 485374  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1130  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

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EPA Drinking Water Certification #OK00013

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		29
P-TERPHENYL-D14		65

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

IWGW-3

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485375  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1255  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

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**OKLAHOMA, 73102-6010**  
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 Sample Receiving: (405) 702-1113  
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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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*EWGW-4*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		1.05				
Acenaphthylene	<	10	UG/L	06/10/10	8270DM	
Acenaphthene	<	10	UG/L	06/10/10	8270DM	
Anthracene	<	10	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ether	<	10	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	10	UG/L	06/10/10	8270DM	
Chrysene	<	10	UG/L	06/10/10	8270DM	
Diethylphthalate	<	10	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	10	UG/L	06/10/10	8270DM	
Fluoranthene	<	10	UG/L	06/10/10	8270DM	
Fluorene	<	10	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	10	UG/L	06/10/10	8270DM	
Hexachloroethane	<	10	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	10	UG/L	06/10/10	8270DM	
Isophorone	<	10	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	10	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	10	UG/L	06/10/10	8270DM	
Nitrobenzene	<	10	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	10	UG/L	06/10/10	8270DM	
Phenanthrene	<	10	UG/L	06/10/10	8270DM	
Pyrene	<	10	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	10	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	10	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	10	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	10	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	10	UG/L	06/10/10	8270DM	

Sample Number: 485375  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1255  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	52	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	21	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	52	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	52	UG/L	06/10/10	8270DM	
Phenol	<	10	UG/L	06/10/10	8270DM	
Naphthalene	<	10	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	52	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	10	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	10	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	10	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	10	UG/L	06/10/10	8270DM	
Dibenzofuran	<	10	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Methylphenol	<	10	UG/L	06/10/10	8270DM	
4-Methylphenol	<	10	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	52	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	10	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	52	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	52	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	52	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		35
P-TERPHENYL-D14		78
PHENOL-D5		23
2-FLUOROBIPHENYL		58



Sample Number: 485375  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1255  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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Sample Receiving: (405) 702-1113  
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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2, 4, 6-TRIBROMOPHENOL		59
NITROBENZENE-D5		68

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-4

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485376  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1310  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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*6w6w-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		1.06				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ethe	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	

Sample Number: 485376  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1310  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	53	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	21	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	53	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	53	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	53	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	53	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	53	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	53	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	53	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		22
P-TERPHENYL-D14		70
NITROBENZENE-D5		63
2-FLUOROBIPHENYL		52

Sample Number: 485376  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1310  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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707 N. ROBINSON  
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Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		30
2,4,6-TRIBROMOPHENOL		55

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWCW-5

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485377  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1048  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWBW-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab		1.16				
Acenaphthylene	<	12	UG/L	06/10/10	8270DM	
Acenaphthene	<	12	UG/L	06/10/10	8270DM	
Anthracene	<	12	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	12	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	12	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	12	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	12	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	12	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ether	<	12	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	12	UG/L	06/10/10	8270DM	
Chrysene	<	12	UG/L	06/10/10	8270DM	
Diethylphthalate	<	12	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	12	UG/L	06/10/10	8270DM	
Fluoranthene	<	12	UG/L	06/10/10	8270DM	
Fluorene	<	12	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	12	UG/L	06/10/10	8270DM	
Hexachloroethane	<	12	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	12	UG/L	06/10/10	8270DM	
Isophorone	<	12	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	12	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	12	UG/L	06/10/10	8270DM	
Nitrobenzene	<	12	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	12	UG/L	06/10/10	8270DM	
Phenanthrene	<	12	UG/L	06/10/10	8270DM	
Pyrene	<	12	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	12	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	12	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	12	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	12	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	12	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	12	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	12	UG/L	06/10/10	8270DM	

Sample Number: 485377  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1048  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

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**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	12	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	12	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	12	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	58	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	12	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	12	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	23	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	12	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	12	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	58	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	58	UG/L	06/10/10	8270DM	
Phenol	<	12	UG/L	06/10/10	8270DM	
Naphthalene	<	12	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	58	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	12	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	12	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	12	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	12	UG/L	06/10/10	8270DM	
Dibenzofuran	<	12	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	12	UG/L	06/10/10	8270DM	
2-Methylphenol	<	12	UG/L	06/10/10	8270DM	
4-Methylphenol	<	12	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	58	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	12	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	58	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	58	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	58	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		56
NITROBENZENE-D5		61
P-TERPHENYL-D14		68
2-FLUOROPHENOL		32

Sample Number: 485377  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1048  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		22
2,4,6-TRIBROMOPHENOL		49

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWCW-6

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485378  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1030  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

CWBW-7

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		1.08				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ethe:	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	



Sample Number: 485378  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1030  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	54	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	54	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	54	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	54	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	54	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	54	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	54	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		69
2,4,6-TRIBROMOPHENOL		60
P-TERPHENYL-D14		75
2-FLUOROBIPHENYL		66

Sample Number: 485378  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1030  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		35
PHENOL-D5		24

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-7

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485379  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 0925  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWBW-8*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabl		1.09				
Acenaphthylene	<	11	UG/L	06/10/10	8270DM	
Acenaphthene	<	11	UG/L	06/10/10	8270DM	
Anthracene	<	11	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	11	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ether	<	11	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	11	UG/L	06/10/10	8270DM	
Chrysene	<	11	UG/L	06/10/10	8270DM	
Diethylphthalate	<	11	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	11	UG/L	06/10/10	8270DM	
Fluoranthene	<	11	UG/L	06/10/10	8270DM	
Fluorene	<	11	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	11	UG/L	06/10/10	8270DM	
Hexachloroethane	<	11	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	11	UG/L	06/10/10	8270DM	
Isophorone	<	11	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	11	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	11	UG/L	06/10/10	8270DM	
Nitrobenzene	<	11	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	11	UG/L	06/10/10	8270DM	
Phenanthrene	<	11	UG/L	06/10/10	8270DM	
Pyrene	<	11	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	11	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	11	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	11	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	11	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	11	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	11	UG/L	06/10/10	8270DM	

Sample Number: 485379  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 0925  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	55	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	11	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	11	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	22	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	11	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	55	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	55	UG/L	06/10/10	8270DM	
Phenol	<	11	UG/L	06/10/10	8270DM	
Naphthalene	<	11	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	55	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	11	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	11	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	11	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	11	UG/L	06/10/10	8270DM	
Dibenzofuran	<	11	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	11	UG/L	06/10/10	8270DM	
2-Methylphenol	<	11	UG/L	06/10/10	8270DM	
4-Methylphenol	<	11	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	55	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	11	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	55	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	55	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	55	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		20
2,4,6-TRIBROMOPHENOL		50
2-FLUOROBIPHENYL		57
P-TERPHENYL-D14		66

Sample Number: 485379  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 0925  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		30
NITROBENZENE-D5		61

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWG-8

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

# **Groundwater Metals**

## **(LWGW 1-10)**

Sample Number: 485372  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1105  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<		UG/L	06/11/10	200.7	
Barium, Total		81.2	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total		5.90	UG/L	06/11/10	200.7	
Copper, Total		20.1	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		5.90	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-1

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\* ANALYST 

Sample Number: 485373  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1110  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		80.5	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total		5.90	UG/L	06/11/10	200.7	
Copper, Total		23.2	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		8.40	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-2


SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST





Sample Number: 485374  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1130  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		47.0	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total		36.0	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		11.3	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-3

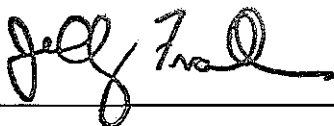
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485375  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1255  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		26.6	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total		6.40	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		9.90	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-4

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485376  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1310  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		254	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total		7.30	UG/L	06/11/10	200.7	
Copper, Total		8.00	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		24.0	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWG-5

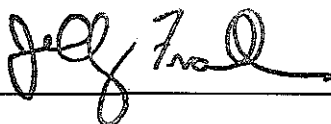
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485377  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1048  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		98.5	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total		10.0	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		22.2	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWG-6

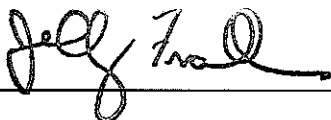
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485378  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1030  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		50.6	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total		13.2	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		7.00	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-7

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485379  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 0925  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		58.5	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total	<	5.00	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
*Zinc, Total		109	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-8

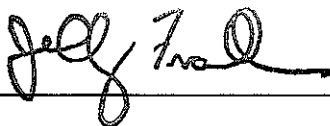
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485380  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
FWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*Background*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/11/10	200.7	
Barium, Total		44.0	UG/L	06/11/10	200.7	
Beryllium, Total	<	2.00	UG/L	06/11/10	200.7	
Cadmium, Total	<	5.00	UG/L	06/11/10	200.7	
Chromium, Total	<	5.00	UG/L	06/11/10	200.7	
Copper, Total	<	5.00	UG/L	06/11/10	200.7	
Lead, Total	<	10.0	UG/L	06/11/10	200.7	
Thallium, Total	<	10.0	UG/L	06/11/10	200.7	
Nickel, Total	<	10.0	UG/L	06/11/10	200.7	
Silver, Total	<	5.00	UG/L	06/11/10	200.7	
Zinc, Total		5.40	UG/L	06/11/10	200.7	
Antimony, Total	<	10.0	UG/L	06/11/10	200.7	
Selenium, Total	<	10.0	UG/L	06/11/10	200.7	
Mercury, Total	<	0.05	UG/L	06/11/10	7470	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWG-9

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST

*Jeff F. Hall*

Sample Number: 485629  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
Date Received: 6/10/2010  
Date Completed: 06/22/2010  
Collected By:  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/22/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Total	<	10.0	UG/L	06/16/10	200.8	
Barium, Total	<	5.00	UG/L	06/16/10	200.8	
Beryllium, Total	<	2.00	UG/L	06/16/10	200.8	
Cadmium, Total	<	5.00	UG/L	06/16/10	200.8	
Chromium, Total	<	5.00	UG/L	06/16/10	200.8	
Copper, Total		36.3	UG/L	06/16/10	200.8	
Lead, Total	<	10.0	UG/L	06/16/10	200.8	
Thallium, Total	<	10.0	UG/L	06/16/10	200.8	
Nickel, Total	<	10.0	UG/L	06/16/10	200.8	
Silver, Total	<	5.00	UG/L	06/16/10	200.8	
Zinc, Total		28.3	UG/L	06/16/10	200.8	
Antimony, Total	<	10.0	UG/L	06/16/10	200.8	
Selenium, Total	<	10.0	UG/L	06/16/10	200.8	
Mercury, Total	<	0.05	UG/L	06/17/10	245.1	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWG-10

ANALYST'S COMMENTS:

\*

\* ANALYST





# **Drinking Water (GW)**

## **Method 524.2**

### **(LWGW 1-10)**

Sample Number: 485631  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/17/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/17/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWGW-10

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/16/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/16/10	524.2	
Bromoform	<	0.5	UG/L	06/16/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/16/10	524.2	
Chloroform	<	0.5	UG/L	06/16/10	524.2	
Toluene	<	0.5	UG/L	06/16/10	524.2	
Benzene	<	0.5	UG/L	06/16/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/16/10	524.2	
Chloroethane	<	0.5	UG/L	06/16/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/16/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/16/10	524.2	
Methylene chloride	<	0.5	UG/L	06/16/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/16/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/16/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/16/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/16/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/16/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/16/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/16/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/16/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/16/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/16/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/16/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/16/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/16/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/16/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/16/10	524.2	
Naphthalene	<	0.5	UG/L	06/16/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/16/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/16/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/16/10	524.2	
Trichloroethene	<	0.5	UG/L	06/16/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/16/10	524.2	

Sample Number: 485631  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/17/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/17/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/16/10	524.2	
o-Xylene	<	0.5	UG/L	06/16/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/16/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/16/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/16/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/16/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/16/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/16/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/16/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/16/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/16/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/16/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/16/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/16/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/16/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/16/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/16/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/16/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/16/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/16/10	524.2	
Total Xylenes	<	0.5	UG/L	06/16/10	524.2	
Bromobenzene	<	0.5	UG/L	06/16/10	524.2	
m & p Xylene	<	0.5	UG/L	06/16/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/16/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/16/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/16/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		104
4-BROMOFLUOROBENZENE		106

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 131

Sample Number: 485631  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
Date Received: 6/10/2010  
Date Completed: 06/17/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/17/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-10

SAMPLE RECEIVING COMMENTS:

ICE; TEMP= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485382  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LW6W-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

Sample Number: 485382  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		95
1,2-DICHLOROBENZENE-D4		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 134

Sample Number: 485382  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

**Summary**

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-1

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485383  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LWGW-2

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	



Sample Number: 485383  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (MTBE)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		94
4-BROMOFLUOROBENZENE		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 137

Sample Number: 485383  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-2

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485384  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWGW-3

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 139

Sample Number: 485384  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		95
4-BROMOFLUOROBENZENE		100

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 140

Sample Number: 485384  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-3

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485385  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LW6W-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 142

Sample Number: 485385  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		92
4-BROMOFLUOROBENZENE		92

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 143

Sample Number: 485385  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-4

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*



Number: 485386  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

LW6W-5

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	NC	0.6	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 145

Sample Number: 485386  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (MTBE)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		95
1,2-DICHLOROBENZENE-D4		94

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 146

File Number: 485386  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-5

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed., (NC)  
Analyte result not to be used for Trihalomethane compliance purposes.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485387  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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*LCW-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

Sample Number: 485387  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (MTBE)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		97
1,2-DICHLOROBENZENE-D4		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 149

Sample Number: 485387  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-6

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485388  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LWBW-7

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 151

Sample Number: 485388  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (MTBE)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		96
4-BROMOFLUOROBENZENE		95

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 152



Sample Number: 485388  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-7

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485389  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LWGW-8

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 154

Sample Number: 485389  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		98
4-BROMOFLUOROBENZENE		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 155

Sample Number: 485389  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-8

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

Sample Number: 485390  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LWBW-9

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Bromodichloromethane	<	0.5	UG/L	06/10/10	524.2	
Carbon tetrachloride	<	0.5	UG/L	06/10/10	524.2	
Bromoform	<	0.5	UG/L	06/10/10	524.2	
Dibromochloromethane	<	0.5	UG/L	06/10/10	524.2	
Chloroform	<	0.5	UG/L	06/10/10	524.2	
Toluene	<	0.5	UG/L	06/10/10	524.2	
Benzene	<	0.5	UG/L	06/10/10	524.2	
Chlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Chloroethane	<	0.5	UG/L	06/10/10	524.2	
Ethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Hexachlorobutadiene	<	0.5	UG/L	06/10/10	524.2	
Methylene chloride	<	0.5	UG/L	06/10/10	524.2	
Tetrachloroethene	<	0.5	UG/L	06/10/10	524.2	
Fluorotrichloromethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,1,1-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2-Trichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,1,2,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloroethane	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
trans-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,4-Dichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
Dichlorodifluoromethane	<	0.5	UG/L	06/10/10	524.2	
Naphthalene	<	0.5	UG/L	06/10/10	524.2	
trans-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
cis-1,3-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
Vinyl chloride	<	0.5	UG/L	06/10/10	524.2	
Trichloroethene	<	0.5	UG/L	06/10/10	524.2	
cis-1,2-Dichloroethene	<	0.5	UG/L	06/10/10	524.2	

09 157

Sample Number: 485390  
 Project Code: SW-VOC  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/11/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/11/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Styrene	<	0.5	UG/L	06/10/10	524.2	
o-Xylene	<	0.5	UG/L	06/10/10	524.2	
1,1-Dichloropropene	<	0.5	UG/L	06/10/10	524.2	
2,2-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,3-Dichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,2,4-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
Isopropylbenzene	<	0.5	UG/L	06/10/10	524.2	
n-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,3,5-Trimethylbenzene	<	0.5	UG/L	06/10/10	524.2	
2-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
4-Chlorotoluene	<	0.5	UG/L	06/10/10	524.2	
sec-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
p-Isopropyltoluene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichloropropane	<	0.5	UG/L	06/10/10	524.2	
1,1,1,2-Tetrachloroethane	<	0.5	UG/L	06/10/10	524.2	
Dibromomethane (MDB)	<	0.5	UG/L	06/10/10	524.2	
n-Propylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2,3-Trichlorobenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromoethane	<	0.5	UG/L	06/10/10	524.2	
tert-Butyl methyl ether (M)	<	0.5	UG/L	06/10/10	524.2	
Total Xylenes	<	0.5	UG/L	06/10/10	524.2	
Bromobenzene	<	0.5	UG/L	06/10/10	524.2	
m & p Xylene	<	0.5	UG/L	06/10/10	524.2	
tert-Butylbenzene	<	0.5	UG/L	06/10/10	524.2	
1,2-Dibromo,3-chloropropane	<	0.5	UG/L	06/10/10	524.2	
Bromochloromethane	<	0.5	UG/L	06/10/10	524.2	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROBENZENE-D4		98
4-BROMOFLUOROBENZENE		95

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NOT ANALYZED

09 158

Sample Number: 485390  
Project Code: SW-VOC  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/11/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/11/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWGW-9

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Olivia Pierce (524.2), Sample received on ice during cooling down phase. Analyzed.

\*

\* ANALYST

*Olivia Pierce*

# Lab Blanks



Sample Number: 485630  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected:  
 Date Received: 6/10/2010  
 Date Completed: 07/14/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/14/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab		1.00				
Acenaphthylene	<	10	UG/L	07/08/10	8270DM	
Acenaphthene	<	10	UG/L	07/08/10	8270DM	
Anthracene	<	10	UG/L	07/08/10	8270DM	
Benzo(b)fluoranthene	<	10	UG/L	07/08/10	8270DM	
Benzo(k)fluoranthene	<	10	UG/L	07/08/10	8270DM	
Benzo(a)pyrene	<	10	UG/L	07/08/10	8270DM	
Bis(2-chloroethyl)ether	<	10	UG/L	07/08/10	8270DM	
Bis(2-chloroethoxy)methane	<	10	UG/L	07/08/10	8270DM	
Bis(2-chloroisopropyl)ether	<	10	UG/L	07/08/10	8270DM	
Butylbenzylphthalate	<	10	UG/L	07/08/10	8270DM	
Chrysene	<	10	UG/L	07/08/10	8270DM	
Diethylphthalate	<	10	UG/L	07/08/10	8270DM	
Dimethylphthalate	<	10	UG/L	07/08/10	8270DM	
Fluoranthene	<	10	UG/L	07/08/10	8270DM	
Fluorene	<	10	UG/L	07/08/10	8270DM	
Hexachlorocyclopentadiene	<	10	UG/L	07/08/10	8270DM	
Hexachloroethane	<	10	UG/L	07/08/10	8270DM	
Indeno(123cd)pyrene	<	10	UG/L	07/08/10	8270DM	
Isophorone	<	10	UG/L	07/08/10	8270DM	
Nitrosodipropylamine	<	10	UG/L	07/08/10	8270DM	
Nitrosodiphenylamine	<	10	UG/L	07/08/10	8270DM	
Nitrobenzene	<	10	UG/L	07/08/10	8270DM	
p-Chloro-m-cresol	<	10	UG/L	07/08/10	8270DM	
Phenanthrene	<	10	UG/L	07/08/10	8270DM	
Pyrene	<	10	UG/L	07/08/10	8270DM	
Benzo(ghi)perylene	<	10	UG/L	07/08/10	8270DM	
Benzo(a)anthracene	<	10	UG/L	07/08/10	8270DM	
Dibenzo(ah)anthracene	<	10	UG/L	07/08/10	8270DM	
2-Chloronaphthalene	<	10	UG/L	07/08/10	8270DM	
2-Chlorophenol	<	10	UG/L	07/08/10	8270DM	
2-Nitrophenol	<	10	UG/L	07/08/10	8270DM	
Di-n-octylphthalate	<	10	UG/L	07/08/10	8270DM	

Sample Number: 485630  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected:  
 Date Received: 6/10/2010  
 Date Completed: 07/14/2010  
 Collected By: TD  
 FWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/14/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
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 Sample Receiving: (405) 702-1113  
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 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	10	UG/L	07/08/10	8270DM	
2,4-Dimethylphenol	<	10	UG/L	07/08/10	8270DM	
2,4-Dinitrotoluene	<	10	UG/L	07/08/10	8270DM	
2,4-Dinitrophenol	<	50	UG/L	07/08/10	8270DM	
2,4,6-Trichlorophenol	<	10	UG/L	07/08/10	8270DM	
2,6-Dinitrotoluene	<	10	UG/L	07/08/10	8270DM	
3,3'-Dichlorobenzidine	<	20	UG/L	07/08/10	8270DM	
4-Bromophenylphenyl ether	<	10	UG/L	07/08/10	8270DM	
4-Chlorophenylphenyl ether	<	10	UG/L	07/08/10	8270DM	
4-Nitrophenol	<	50	UG/L	07/08/10	8270DM	
4,6-Dinitro-o-cresol	<	50	UG/L	07/08/10	8270DM	
Phenol	<	10	UG/L	07/08/10	8270DM	
Naphthalene	<	10	UG/L	07/08/10	8270DM	
Pentachlorophenol	<	50	UG/L	07/08/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	10	UG/L	07/08/10	8270DM	
Di-n-butylphthalate	<	10	UG/L	07/08/10	8270DM	
Hexachlorobenzene	<	10	UG/L	07/08/10	8270DM	
Hexachlorobutadiene	<	10	UG/L	07/08/10	8270DM	
Dibenzofuran	<	10	UG/L	07/08/10	8270DM	
2-Methylnaphthalene	<	10	UG/L	07/08/10	8270DM	
2-Methylphenol	<	10	UG/L	07/08/10	8270DM	
4-Methylphenol	<	10	UG/L	07/08/10	8270DM	
2,4,5-Trichlorophenol	<	50	UG/L	07/08/10	8270DM	
4-Chloroaniline	<	10	UG/L	07/08/10	8270DM	
2-Nitroaniline	<	50	UG/L	07/08/10	8270DM	
3-Nitroaniline	<	50	UG/L	07/08/10	8270DM	
4-Nitroaniline	<	50	UG/L	07/08/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		25
NITROBENZENE-D5		81
2,4,6-TRIBROMOPHENOL		56
2-FLUOROPHENOL		42

Sample Number: 485630  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected:  
Date Received: 6/10/2010  
Date Completed: 07/14/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/14/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
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EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		77
P-TERPHENYL-D14		127

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LAB BLANK

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\* ANALYST Cassandra Kontas

Sample Number: 485646  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected:  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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*Lab Blank*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/11/10	8260BM	
Benzene	<	10.0	UG/KG	06/11/10	8260BM	
Bromoform	<	10.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	10.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	10.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	10.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	10.0	UG/KG	06/11/10	8260BM	
Chloroform	<	10.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	10.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	10.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	10.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	10.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	10.0	UG/KG	06/11/10	8260BM	
Toluene	<	10.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	10.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	10.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	10.0	UG/KG	06/11/10	8260BM	
Acetone	<	10.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	10.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	10.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/KG	06/11/10	8260BM	
Styrene	<	10.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	10.0	UG/KG	06/11/10	8260BM	

Sample Number: 485646  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected:  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab			%		1005 M	
Dichlorodifluoromethane	<	10.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	10.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	10.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	10.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	10.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		109
TOLUENE-D8		98
4-BROMOFLUOROBENZENE		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485646  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected:  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

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Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LAB BLANK

ANALYST'S COMMENTS:

\*

\* ANALYST

  
Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485381  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*Lab Blank*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		1.00				
Acenaphthylene	<	10	UG/L	06/10/10	8270DM	
Acenaphthene	<	10	UG/L	06/10/10	8270DM	
Anthracene	<	10	UG/L	06/10/10	8270DM	
Benzo(b)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(k)fluoranthene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)pyrene	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethyl)ether	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroethoxy)methane	<	10	UG/L	06/10/10	8270DM	
Bis(2-chloroisopropyl)ethe:	<	10	UG/L	06/10/10	8270DM	
Butylbenzylphthalate	<	10	UG/L	06/10/10	8270DM	
Chrysene	<	10	UG/L	06/10/10	8270DM	
Diethylphthalate	<	10	UG/L	06/10/10	8270DM	
Dimethylphthalate	<	10	UG/L	06/10/10	8270DM	
Fluoranthene	<	10	UG/L	06/10/10	8270DM	
Fluorene	<	10	UG/L	06/10/10	8270DM	
Hexachlorocyclopentadiene	<	10	UG/L	06/10/10	8270DM	
Hexachloroethane	<	10	UG/L	06/10/10	8270DM	
Indeno(123cd)pyrene	<	10	UG/L	06/10/10	8270DM	
Isophorone	<	10	UG/L	06/10/10	8270DM	
Nitrosodipropylamine	<	10	UG/L	06/10/10	8270DM	
Nitrosodiphenylamine	<	10	UG/L	06/10/10	8270DM	
Nitrobenzene	<	10	UG/L	06/10/10	8270DM	
p-Chloro-m-cresol	<	10	UG/L	06/10/10	8270DM	
Phenanthrene	<	10	UG/L	06/10/10	8270DM	
Pyrene	<	10	UG/L	06/10/10	8270DM	
Benzo(ghi)perylene	<	10	UG/L	06/10/10	8270DM	
Benzo(a)anthracene	<	10	UG/L	06/10/10	8270DM	
Dibenzo(ah)anthracene	<	10	UG/L	06/10/10	8270DM	
2-Chloronaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Chlorophenol	<	10	UG/L	06/10/10	8270DM	
2-Nitrophenol	<	10	UG/L	06/10/10	8270DM	
Di-n-octylphthalate	<	10	UG/L	06/10/10	8270DM	

Sample Number: 485381  
 Project Code: SW-WE  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333-  
 Date Received: 6/8/2010  
 Date Completed: 06/24/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/24/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
2,4-Dichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dimethylphenol	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
2,4-Dinitrophenol	<	50	UG/L	06/10/10	8270DM	
2,4,6-Trichlorophenol	<	10	UG/L	06/10/10	8270DM	
2,6-Dinitrotoluene	<	10	UG/L	06/10/10	8270DM	
3,3'-Dichlorobenzidine	<	20	UG/L	06/10/10	8270DM	
4-Bromophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Chlorophenylphenyl ether	<	10	UG/L	06/10/10	8270DM	
4-Nitrophenol	<	50	UG/L	06/10/10	8270DM	
4,6-Dinitro-o-cresol	<	50	UG/L	06/10/10	8270DM	
Phenol	<	10	UG/L	06/10/10	8270DM	
Naphthalene	<	10	UG/L	06/10/10	8270DM	
Pentachlorophenol	<	50	UG/L	06/10/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	10	UG/L	06/10/10	8270DM	
Di-n-butylphthalate	<	10	UG/L	06/10/10	8270DM	
Hexachlorobenzene	<	10	UG/L	06/10/10	8270DM	
Hexachlorobutadiene	<	10	UG/L	06/10/10	8270DM	
Dibenzofuran	<	10	UG/L	06/10/10	8270DM	
2-Methylnaphthalene	<	10	UG/L	06/10/10	8270DM	
2-Methylphenol	<	10	UG/L	06/10/10	8270DM	
4-Methylphenol	<	10	UG/L	06/10/10	8270DM	
2,4,5-Trichlorophenol	<	50	UG/L	06/10/10	8270DM	
4-Chloroaniline	<	10	UG/L	06/10/10	8270DM	
2-Nitroaniline	<	50	UG/L	06/10/10	8270DM	
3-Nitroaniline	<	50	UG/L	06/10/10	8270DM	
4-Nitroaniline	<	50	UG/L	06/10/10	8270DM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		20
P-TERPHENYL-D14		78
2-FLUOROBIPHENYL		58
NITROBENZENE-D5		61



Sample Number: 485381  
Project Code: SW-WE  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/24/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/24/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		31
2,4,6-TRIBROMOPHENOL		48

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LAB BLANK

SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no "tentatively identified" compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485661  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1127  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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*Lab Blank*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		33.0				
Acenaphthylene	<	330	UG/KG	06/16/10	8270DM	
Acenaphthene	<	330	UG/KG	06/16/10	8270DM	
Anthracene	<	330	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	330	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	330	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	330	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	330	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	330	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	330	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	330	UG/KG	06/16/10	8270DM	
Chrysene	<	330	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	330	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	330	UG/KG	06/16/10	8270DM	
Fluoranthene	<	330	UG/KG	06/16/10	8270DM	
Fluorene	<	330	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	330	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	330	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	330	UG/KG	06/16/10	8270DM	
Isophorone	<	330	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	330	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	330	UG/KG	06/16/10	8270DM	
Naphthalene	<	330	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	330	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	330	UG/KG	06/16/10	8270DM	
Phenanthrene	<	330	UG/KG	06/16/10	8270DM	
Pyrene	<	330	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	330	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	330	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	330	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	330	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	330	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	330	UG/KG	06/16/10	8270DM	

Sample Number: 485661  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1127  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	330	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	330	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	330	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	330	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1600	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1600	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	330	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	660	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	330	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	330	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1600	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1600	UG/KG	06/16/10	8270DM	
Phenol	<	330	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1600	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	330	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	330	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	330	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	330	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	330	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	330	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	330	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	330	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1600	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	330	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1600	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1600	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1600	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	330	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab			%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		53
P-TERPHENYL-D14		92

Sample Number: 485661  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1127  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		61
2,4,6-TRIBROMOPHENOL		70
PHENOL-D5		60
2-FLUOROBIPHENYL		65

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LAB BLANK

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

# **Waste VOCs**

## **(LWW-1, 3-6)**

Sample Number: 485633  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0923  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

CHW-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		06/11/10	8260BM	
Benzene	<	15.0	UG/KG	06/11/10	8260BM	
Bromoform	<	15.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	15.0	UG/KG	06/11/10	8260BM	
Chloroform	<	15.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	15.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	15.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Toluene	<	15.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	15.0	UG/KG	06/11/10	8260BM	
Acetone	<	15.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	15.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	06/11/10	8260BM	
Styrene	<	15.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	06/11/10	8260BM	

Sample Number: 485633  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0923  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		12.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	15.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	15.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		102
4-BROMOFLUOROBENZENE		96
1,2-DICHLOROETHANE-D4		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485633  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0923  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

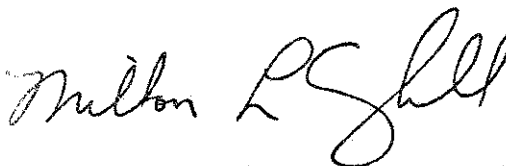
To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-1

ANALYST'S COMMENTS:



Milton L. Campbell  
~~State Environmental Laboratory~~

\* \* ANALYST \_\_\_\_\_



Sample Number: 485638  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

LWW-3

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

09 177

Sample Number: 485638  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		9.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		102
1,2-DICHLOROETHANE-D4		105
4-BROMOFLUOROBENZENE		95

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485638  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

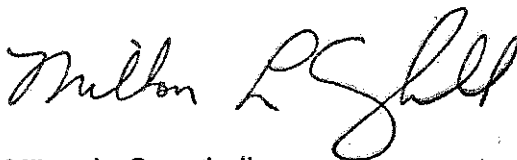
To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-3

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\*

\* ANALYST

Sample Number: 485639  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LWW-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485639  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		10.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		96
TOLUENE-D8		102
1,2-DICHLOROETHANE-D4		101

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485639  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

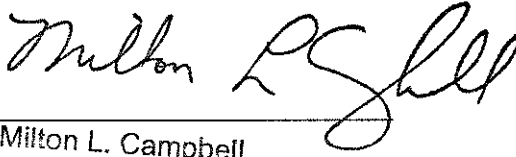
SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-4

ANALYST'S COMMENTS:

\*

\* ANALYST

  
Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485643  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1400  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LWW-5

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeables:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485643  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1400  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		9.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifluoroethane	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (MTBE)	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		120
4-BROMOFLUOROBENZENE		75
1,2-DICHLOROETHANE-D4		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS



Sample Number: 485643  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1400  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

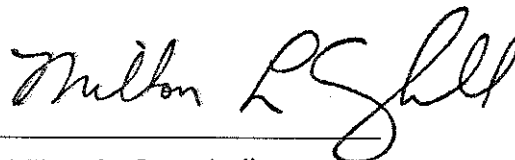
SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-5

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485642  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1345  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

*LWW-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.30		06/11/10	8260BM	
Benzene	<	13.0	UG/KG	06/11/10	8260BM	
Bromoform	<	13.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	13.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	13.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	13.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	13.0	UG/KG	06/11/10	8260BM	
Chloroform	<	13.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	13.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	13.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	13.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	13.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	13.0	UG/KG	06/11/10	8260BM	
Toluene	<	13.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	13.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	13.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	13.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	13.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	13.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	13.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	13.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	13.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	13.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	13.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	13.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	13.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	13.0	UG/KG	06/11/10	8260BM	
Acetone	<	13.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	13.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	13.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	13.0	UG/KG	06/11/10	8260BM	
Styrene	<	13.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	13.0	UG/KG	06/11/10	8260BM	

Sample Number: 485642  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1345  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		6.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	13.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	13.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	13.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	13.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	13.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	13.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	13.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	13.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	13.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	13.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	13.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	13.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	13.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	13.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	13.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		99
4-BROMOFLUOROBENZENE		94
TOLUENE-D8		100

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485642  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1345  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

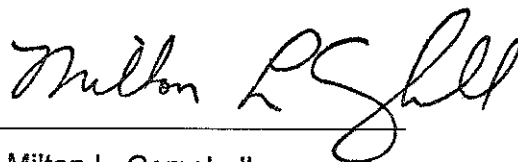
SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-6

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

# **Waste SVOCs**

## **(LWW-1, 3-6)**

Sample Number: 485648  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0923  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWW-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		37.0				
Acenaphthylene	<	370	UG/KG	06/16/10	8270DM	
Acenaphthene	<	370	UG/KG	06/16/10	8270DM	
Anthracene	<	370	UG/KG	06/16/10	8270DM	
Benzo(b) fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Benzo(k) fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	370	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	370	UG/KG	06/16/10	8270DM	
Chrysene	<	370	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	370	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	370	UG/KG	06/16/10	8270DM	
Fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Fluorene	<	370	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	370	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	370	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	370	UG/KG	06/16/10	8270DM	
Isophorone	<	370	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	370	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	370	UG/KG	06/16/10	8270DM	
Naphthalene	<	370	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	370	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	370	UG/KG	06/16/10	8270DM	
Phenanthrene	<	370	UG/KG	06/16/10	8270DM	
Pyrene	<	370	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	370	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	370	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	370	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	370	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	370	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	370	UG/KG	06/16/10	8270DM	

Sample Number: 485648  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0923  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	370	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	370	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	370	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	370	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	370	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	740	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	370	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	370	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/16/10	8270DM	
Phenol	<	370	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	370	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	370	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	370	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	370	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	370	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	370	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	370	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	370	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	370	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	370	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		11.9	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		76
2-FLUOROPHENOL		68

Sample Number: 485648  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0923  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		76
2-FLUOROBIPHENYL		68
2,4,6-TRIBROMOPHENOL		71
P-TERPHENYL-D14		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas



Sample Number: 485653  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWW-3*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		36.0				
Acenaphthylene	<	360	UG/KG	06/21/10	8270DM	
Acenaphthene	<	360	UG/KG	06/21/10	8270DM	
Anthracene	<	360	UG/KG	06/21/10	8270DM	
Benzo(b)fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Benzo(k)fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Benzo(a)pyrene	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroethyl)ether	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroethoxy)methane	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroisopropyl)ether	<	360	UG/KG	06/21/10	8270DM	
Butylbenzylphthalate	<	360	UG/KG	06/21/10	8270DM	
Chrysene	<	360	UG/KG	06/21/10	8270DM	
Diethylphthalate	<	360	UG/KG	06/21/10	8270DM	
Dimethylphthalate	<	360	UG/KG	06/21/10	8270DM	
Fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Fluorene	<	360	UG/KG	06/21/10	8270DM	
Hexachlorocyclopentadiene	<	360	UG/KG	06/21/10	8270DM	
Hexachloroethane	<	360	UG/KG	06/21/10	8270DM	
Indeno(123cd)pyrene	<	360	UG/KG	06/21/10	8270DM	
Isophorone	<	360	UG/KG	06/21/10	8270DM	
Nitrosodipropylamine	<	360	UG/KG	06/21/10	8270DM	
Nitrosodiphenylamine	<	360	UG/KG	06/21/10	8270DM	
Naphthalene	<	360	UG/KG	06/21/10	8270DM	
Nitrobenzene	<	360	UG/KG	06/21/10	8270DM	
p-Chloro-m-cresol	<	360	UG/KG	06/21/10	8270DM	
Phenanthrene	<	360	UG/KG	06/21/10	8270DM	
Pyrene	<	360	UG/KG	06/21/10	8270DM	
Benzo(ghi)perylene	<	360	UG/KG	06/21/10	8270DM	
Benzo(a)anthracene	<	360	UG/KG	06/21/10	8270DM	
Dibenzo(ah)anthracene	<	360	UG/KG	06/21/10	8270DM	
2-Chloronaphthalene	<	360	UG/KG	06/21/10	8270DM	
2-Chlorophenol	<	360	UG/KG	06/21/10	8270DM	
2-Nitrophenol	<	360	UG/KG	06/21/10	8270DM	

Sample Number: 485653  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	360	UG/KG	06/21/10	8270DM	
2,4-Dichlorophenol	<	360	UG/KG	06/21/10	8270DM	
2,4-Dimethylphenol	<	360	UG/KG	06/21/10	8270DM	
2,4-Dinitrotoluene	<	360	UG/KG	06/21/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/21/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
2,6-Dinitrotoluene	<	360	UG/KG	06/21/10	8270DM	
3,3'-Dichlorobenzidine	<	720	UG/KG	06/21/10	8270DM	
4-Bromophenylphenyl ether	<	360	UG/KG	06/21/10	8270DM	
4-Chlorophenylphenyl ether	<	360	UG/KG	06/21/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/21/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/21/10	8270DM	
Phenol	<	360	UG/KG	06/21/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/21/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	360	UG/KG	06/21/10	8270DM	
Di-n-butylphthalate	<	360	UG/KG	06/21/10	8270DM	
Hexachlorobenzene	<	360	UG/KG	06/21/10	8270DM	
Hexachlorobutadiene	<	360	UG/KG	06/21/10	8270DM	
Benzyl alcohol	<	360	UG/KG	06/21/10	8270DM	
Dibenzofuran	<	360	UG/KG	06/21/10	8270DM	
2-Methylphenol	<	360	UG/KG	06/21/10	8270DM	
4-Methylphenol	<	360	UG/KG	06/21/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
4-Chloroaniline	<	360	UG/KG	06/21/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
2-Methylnaphthalene	<	360	UG/KG	06/21/10	8270DM	
% Moisture - GC/MS Lab		8.8	%	06/21/10	1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		63
2-FLUOROBIPHENYL		53

Sample Number: 485653  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		73
P-TERPHENYL-D14		82
PHENOL-D5		76
2,4,6-TRIBROMOPHENOL		72

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Octadecanoic acid, 2-hydroxy-1-		370	µg/kg

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-3

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The name of the tentatively identified compound was truncated in the report table; the complete name is:

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485657  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1345  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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*LWW-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		37.0				
Acenaphthylene	<	370	UG/KG	06/16/10	8270DM	
Acenaphthene	<	370	UG/KG	06/16/10	8270DM	
Anthracene	<	370	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	370	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ethe:	<	370	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	370	UG/KG	06/16/10	8270DM	
Chrysene	<	370	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	370	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	370	UG/KG	06/16/10	8270DM	
Fluoranthene	<	370	UG/KG	06/16/10	8270DM	
Fluorene	<	370	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	370	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	370	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	370	UG/KG	06/16/10	8270DM	
Isophorone	<	370	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	370	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	370	UG/KG	06/16/10	8270DM	
Naphthalene	<	370	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	370	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	370	UG/KG	06/16/10	8270DM	
Phenanthrene	<	370	UG/KG	06/16/10	8270DM	
Pyrene	<	370	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	370	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	370	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	370	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	370	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	370	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	370	UG/KG	06/16/10	8270DM	

Sample Number: 485657  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1345  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	370	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	370	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	370	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	370	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	370	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	740	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	370	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	370	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/16/10	8270DM	
Phenol	<	370	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	370	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	370	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	370	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	370	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	370	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	370	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	370	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	370	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	370	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	370	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		6.00	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
PHENOL-D5		74
NITROBENZENE-D5		66

Sample Number: 485657  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1345  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2,4,6-TRIBROMOPHENOL		74
2-FLUOROPHENOL		64
P-TERPHENYL-D14		84
2-FLUOROBIPHENYL		58

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-6

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485654  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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LWW-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		37.0				
Acenaphthylene	<	370	UG/KG	06/21/10	8270DM	
Acenaphthene	<	370	UG/KG	06/21/10	8270DM	
Anthracene	<	370	UG/KG	06/21/10	8270DM	
Benzo(b)fluoranthene —		610	UG/KG	06/21/10	8270DM	
Benzo(k)fluoranthene	<	370	UG/KG	06/21/10	8270DM	
Benzo(a)pyrene —		410	UG/KG	06/21/10	8270DM	
Bis(2-chloroethyl)ether	<	370	UG/KG	06/21/10	8270DM	
Bis(2-chloroethoxy)methane	<	370	UG/KG	06/21/10	8270DM	
Bis(2-chloroisopropyl)ether	<	370	UG/KG	06/21/10	8270DM	
Butylbenzylphthalate	<	370	UG/KG	06/21/10	8270DM	
Chrysene —		550	UG/KG	06/21/10	8270DM	
Diethylphthalate	<	370	UG/KG	06/21/10	8270DM	
Dimethylphthalate	<	370	UG/KG	06/21/10	8270DM	
Fluoranthene —		1200	UG/KG	06/21/10	8270DM	
Fluorene	<	370	UG/KG	06/21/10	8270DM	
Hexachlorocyclopentadiene	<	370	UG/KG	06/21/10	8270DM	
Hexachloroethane	<	370	UG/KG	06/21/10	8270DM	
Indeno(123cd)pyrene	<	370	UG/KG	06/21/10	8270DM	
Isophorone	<	370	UG/KG	06/21/10	8270DM	
Nitrosodipropylamine	<	370	UG/KG	06/21/10	8270DM	
Nitrosodiphenylamine	<	370	UG/KG	06/21/10	8270DM	
Naphthalene	<	370	UG/KG	06/21/10	8270DM	
Nitrobenzene	<	370	UG/KG	06/21/10	8270DM	
p-Chloro-m-cresol	<	370	UG/KG	06/21/10	8270DM	
Phenanthrene —		900	UG/KG	06/21/10	8270DM	
Pyrene —		880	UG/KG	06/21/10	8270DM	
Benzo(ghi)perylene	<	370	UG/KG	06/21/10	8270DM	
Benzo(a)anthracene —		600	UG/KG	06/21/10	8270DM	
Dibenzo(ah)anthracene	<	370	UG/KG	06/21/10	8270DM	
2-Chloronaphthalene	<	370	UG/KG	06/21/10	8270DM	
2-Chlorophenol	<	370	UG/KG	06/21/10	8270DM	
2-Nitrophenol	<	370	UG/KG	06/21/10	8270DM	

Sample Number: 485654  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1017  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	370	UG/KG	06/21/10	8270DM	
2,4-Dichlorophenol	<	370	UG/KG	06/21/10	8270DM	
2,4-Dimethylphenol	<	370	UG/KG	06/21/10	8270DM	
2,4-Dinitrotoluene	<	370	UG/KG	06/21/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/21/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
2,6-Dinitrotoluene	<	370	UG/KG	06/21/10	8270DM	
3,3'-Dichlorobenzidine	<	740	UG/KG	06/21/10	8270DM	
4-Bromophenylphenyl ether	<	370	UG/KG	06/21/10	8270DM	
4-Chlorophenylphenyl ether	<	370	UG/KG	06/21/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/21/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/21/10	8270DM	
Phenol	<	370	UG/KG	06/21/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/21/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	370	UG/KG	06/21/10	8270DM	
Di-n-butylphthalate	<	370	UG/KG	06/21/10	8270DM	
Hexachlorobenzene	<	370	UG/KG	06/21/10	8270DM	
Hexachlorobutadiene	<	370	UG/KG	06/21/10	8270DM	
Benzyl alcohol	<	370	UG/KG	06/21/10	8270DM	
Dibenzofuran	<	370	UG/KG	06/21/10	8270DM	
2-Methylphenol	<	370	UG/KG	06/21/10	8270DM	
4-Methylphenol	<	370	UG/KG	06/21/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
4-Chloroaniline	<	370	UG/KG	06/21/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
2-Methylnaphthalene	<	370	UG/KG	06/21/10	8270DM	
% Moisture - GC/MS Lab		10.	%	06/21/10	1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		80
2,4,6-TRIBROMOPHENOL		81



Sample Number: 485654  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		83
2-FLUOROPHENOL		69
PHENOL-D5		83
2-FLUOROBIPHENYL		56

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Octadecanoic acid, 2-hydroxy-1-		500	µg/kg

Summary
---------

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-4

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The name of the tentatively identified compound was truncated in the report table; the complete name is:

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST Cassandra Kontas

Sample Number: 485658  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1400  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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*UW-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		19000				
Acenaphthylene	<	190000	UG/KG	06/22/10	8270DM	
Acenaphthene	<	190000	UG/KG	06/22/10	8270DM	
Anthracene	<	190000	UG/KG	06/22/10	8270DM	
Benzo(b)fluoranthene	<	190000	UG/KG	06/22/10	8270DM	
Benzo(k)fluoranthene	<	190000	UG/KG	06/22/10	8270DM	
Benzo(a)pyrene	<	190000	UG/KG	06/22/10	8270DM	
Bis(2-chloroethyl)ether	<	190000	UG/KG	06/22/10	8270DM	
Bis(2-chloroethoxy)methane	<	190000	UG/KG	06/22/10	8270DM	
Bis(2-chloroisopropyl)ether	<	190000	UG/KG	06/22/10	8270DM	
Butylbenzylphthalate	<	190000	UG/KG	06/22/10	8270DM	
Chrysene	<	190000	UG/KG	06/22/10	8270DM	
Diethylphthalate	<	190000	UG/KG	06/22/10	8270DM	
Dimethylphthalate	<	190000	UG/KG	06/22/10	8270DM	
Fluoranthene	<	190000	UG/KG	06/22/10	8270DM	
Fluorene	<	190000	UG/KG	06/22/10	8270DM	
Hexachlorocyclopentadiene	<	190000	UG/KG	06/22/10	8270DM	
Hexachloroethane	<	190000	UG/KG	06/22/10	8270DM	
Indeno(123cd)pyrene	<	190000	UG/KG	06/22/10	8270DM	
Isophorone	<	190000	UG/KG	06/22/10	8270DM	
Nitrosodipropylamine	<	190000	UG/KG	06/22/10	8270DM	
Nitrosodiphenylamine	<	190000	UG/KG	06/22/10	8270DM	
Naphthalene	<	190000	UG/KG	06/22/10	8270DM	
Nitrobenzene	<	190000	UG/KG	06/22/10	8270DM	
p-Chloro-m-cresol	<	190000	UG/KG	06/22/10	8270DM	
Phenanthrene	—	200000	UG/KG	06/22/10	8270DM	
Pyrene	—	200000	UG/KG	06/22/10	8270DM	
Benzo(ghi)perylene	<	190000	UG/KG	06/22/10	8270DM	
Benzo(a)anthracene	<	190000	UG/KG	06/22/10	8270DM	
Dibenzo(ah)anthracene	<	190000	UG/KG	06/22/10	8270DM	
2-Chloronaphthalene	<	190000	UG/KG	06/22/10	8270DM	
2-Chlorophenol	<	190000	UG/KG	06/22/10	8270DM	
2-Nitrophenol	<	190000	UG/KG	06/22/10	8270DM	

Sample Number: 485658  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1400  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	190000	UG/KG	06/22/10	8270DM	
2,4-Dichlorophenol	<	190000	UG/KG	06/22/10	8270DM	
2,4-Dimethylphenol	<	190000	UG/KG	06/22/10	8270DM	
2,4-Dinitrotoluene	<	190000	UG/KG	06/22/10	8270DM	
2,4-Dinitrophenol	<	950000	UG/KG	06/22/10	8270DM	
2,4,6-Trichlorophenol	<	950000	UG/KG	06/22/10	8270DM	
2,6-Dinitrotoluene	<	190000	UG/KG	06/22/10	8270DM	
3,3'-Dichlorobenzidine	<	380000	UG/KG	06/22/10	8270DM	
4-Bromophenylphenyl ether	<	190000	UG/KG	06/22/10	8270DM	
4-Chlorophenylphenyl ether	<	190000	UG/KG	06/22/10	8270DM	
4-Nitrophenol	<	950000	UG/KG	06/22/10	8270DM	
4,6-Dinitro-o-cresol	<	950000	UG/KG	06/22/10	8270DM	
Phenol	<	190000	UG/KG	06/22/10	8270DM	
Pentachlorophenol	<	950000	UG/KG	06/22/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	190000	UG/KG	06/22/10	8270DM	
Di-n-butylphthalate	<	190000	UG/KG	06/22/10	8270DM	
Hexachlorobenzene	<	190000	UG/KG	06/22/10	8270DM	
Hexachlorobutadiene	<	190000	UG/KG	06/22/10	8270DM	
Benzyl alcohol	<	190000	UG/KG	06/22/10	8270DM	
Dibenzofuran	<	190000	UG/KG	06/22/10	8270DM	
2-Methylphenol	<	190000	UG/KG	06/22/10	8270DM	
4-Methylphenol	<	190000	UG/KG	06/22/10	8270DM	
2,4,5-Trichlorophenol	<	950000	UG/KG	06/22/10	8270DM	
4-Chloroaniline	<	190000	UG/KG	06/22/10	8270DM	
2-Nitroaniline	<	950000	UG/KG	06/22/10	8270DM	
3-Nitroaniline	<	950000	UG/KG	06/22/10	8270DM	
4-Nitroaniline	<	950000	UG/KG	06/22/10	8270DM	
2-Methylnaphthalene		380000	UG/KG	06/22/10	8270DM	
% Moisture - GC/MS Lab		9.1	%	06/22/10	1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		53
2-FLUOROPHENOL		35

Sample Number: 485658  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1400  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		62
NITROBENZENE-D5		66
2,4,6-TRIBROMOPHENOL		55
PHENOL-D5		39

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Naphthalene, 2,3-dimethyl-		330000	µg/kg
unknown alkane #1		330000	µg/kg
unknown alkane #2		360000	µg/kg
Hexadecanoic acid, 2-hydroxy-1-		530000	µg/kg
unknown substituted alkane		370000	µg/kg
Hexatriacontane		400000	µg/kg
Naphthalene, 2,3,6-trimethyl-		270000	µg/kg
Pentadecane, 2,6,10,14-tetramet		910000	µg/kg
unknown alkane #3		430000	µg/kg
Cyclohexane, undecyl-		310000	µg/kg
Phenanthrene, 1-methyl-		340000	µg/kg
Octadecanoic acid, 2-hydroxy-1-		900000	µg/kg
Pentatriacontane		360000	µg/kg
Tridecane		300000	µg/kg
Hexadecane, 2,6,10,14-tetrameth		680000	µg/kg
Naphthalene, 1,6,7-trimethyl-		280000	µg/kg
Naphthalene, 1-ethyl-		520000	µg/kg
Tetratriacontane		320000	µg/kg
Pentadecane, 2,6,10-trimethyl-		750000	µg/kg
Undecane, 2,6-dimethyl-		280000	µg/kg

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

Sample Number: 485658  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1400  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWW-5

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The names of the tentatively identified compounds were truncated in the report table; the complete names are:

Pentadecane, 2,6,10,14-tetramethyl-

Hexadecane, 2,6,10,14-tetramethyl-

Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST

Cassandra Kontas

# **Waste Metals**

## **(LWW-1, 3-6)**

Sample Number: 485648  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0923  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWW-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment—		8.90	MG/KG	06/16/10	6020	
Barium, Sediment—		147	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment —		35.2	MG/KG	06/16/10	6010	
Copper, Sediment—		9.20	MG/KG	06/16/10	6010	
Lead, Sediment -		21.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment -		23.4	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		87.7	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

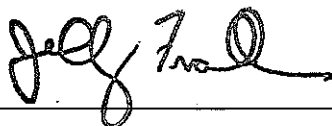
SAMPLERS COMMENTS:

LWW-1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485653  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWW-3

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment -	-	50.0	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment -	-	15.1	MG/KG	06/16/10	6010	
Copper, Sediment -	-	5.40	MG/KG	06/16/10	6010	
Lead, Sediment -	-	12.2	MG/KG	06/16/10	6010	
Nickel, Sediment -	-	5.80	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment -	-	22.4	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		90.8	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-3

ANALYST'S COMMENTS:

\*

\* ANALYST





Sample Number: 485654  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1017  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWW-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment -	-	74.1	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment -	-	21.2	MG/KG	06/16/10	6010	
Copper, Sediment -	-	11.1	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment -	-	24.8	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/17/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		90.7	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

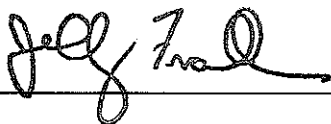
SAMPLERS COMMENTS:

LWW-4

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485658  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1400  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWW-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	—	11.0	MG/KG	06/16/10	6020	
Barium, Sediment	—	79.0	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment	—	20.9	MG/KG	06/16/10	6010	
Copper, Sediment	—	8.20	MG/KG	06/16/10	6010	
Lead, Sediment	—	164	MG/KG	06/16/10	6010	
Nickel, Sediment	—	13.8	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment	—	17.0	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/17/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		90.7	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-5

ANALYST'S COMMENTS:

\*

\* ANALYST

*[Signature]*

Sample Number: 485657  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1345  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWW-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/22/10	6020	
Barium, Sediment	-	138	MG/KG	06/22/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/22/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/22/10	6010	
Chromium, Sediment	-	12.8	MG/KG	06/22/10	6010	
Copper, Sediment	-	6.80	MG/KG	06/22/10	6010	
Lead, Sediment	-	16.0	MG/KG	06/22/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/22/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/22/10	6010	
Zinc, Sediment	-	16.3	MG/KG	06/22/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/22/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/22/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/22/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		92.8	%	06/22/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWW-6

ANALYST'S COMMENTS:

\*

\* ANALYST

*Jeff Tral*

# **Surface Soils VOCs (LWSS 1-9)**

Sample Number: 485645  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1515  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

LWSS-9

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.50		06/11/10	8260BM	
Benzene	<	15.0	UG/KG	06/11/10	8260BM	
Bromoform	<	15.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	15.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	15.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	15.0	UG/KG	06/11/10	8260BM	
Chloroform	<	15.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	15.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	15.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	15.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	15.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Toluene	<	15.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	15.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	15.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	15.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	15.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	15.0	UG/KG	06/11/10	8260BM	
Acetone	<	15.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	15.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	15.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	15.0	UG/KG	06/11/10	8260BM	
Styrene	<	15.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	15.0	UG/KG	06/11/10	8260BM	

Sample Number: 485645  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1515  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		16.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	15.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	15.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	15.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	15.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	15.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	15.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	15.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	15.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	15.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	15.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		81
1,2-DICHLOROETHANE-D4		103
TOLUENE-D8		108

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485645  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1515  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

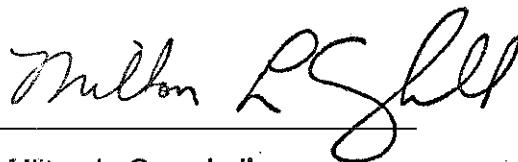
**SAMPLERS COMMENTS:**

LWSS-9

**ANALYST'S COMMENTS:**

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485634  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LWSS-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	



Sample Number: 485634  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
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 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		9.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifluoroethane	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (MTBE)	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		102
1,2-DICHLOROETHANE-D4		98
4-BROMOFLUOROBENZENE		93

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485634  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
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OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

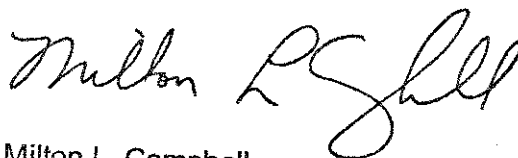
CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-1

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\*

\* ANALYST

Sample Number: 485635  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LWSS-2

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485635  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		11.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		103
1,2-DICHLOROETHANE-D4		98
4-BROMOFLUOROBENZENE		95

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485635  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

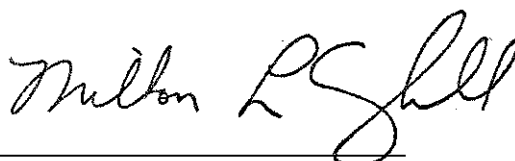
SAMPLERS COMMENTS:

LWSS-2

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485636  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1000  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LW 55-3

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485636  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1000  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		11.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		85
1,2-DICHLOROETHANE-D4		99
TOLUENE-D8		109

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485636  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1000  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-3

ANALYST'S COMMENTS:

\*

\* ANALYST

  
Milton L. Campbell  
State Environmental Laboratory



Sample Number: 485641  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1120  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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CW 55-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485641  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1120  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		8.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		90
TOLUENE-D8		105
1,2-DICHLOROETHANE-D4		98

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485641  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1120  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

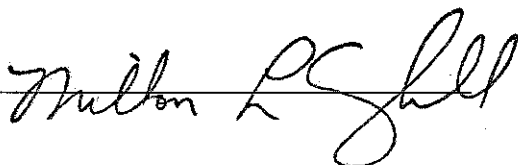
SAMPLERS COMMENTS:

LWSS-4

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485637  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1007  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

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*CWSS-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485637  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1007  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		8.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		98
4-BROMOFLUOROBENZENE		87
TOLUENE-D8		109

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485637  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1007  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

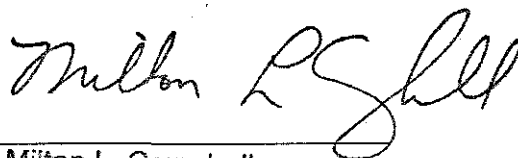
To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWSS-5

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\* ANALYST

\*

Sample Number: 485632  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0910  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LW 55-6

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.90		06/11/10	8260BM	
Benzene	<	19.0	UG/KG	06/11/10	8260BM	
Bromoform	<	19.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	19.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	19.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	19.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	19.0	UG/KG	06/11/10	8260BM	
Chloroform	<	19.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	19.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	19.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	19.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	19.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	19.0	UG/KG	06/11/10	8260BM	
Toluene	<	19.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	19.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	19.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	19.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	19.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	19.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	19.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	19.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	19.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	19.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	19.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	19.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	19.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	19.0	UG/KG	06/11/10	8260BM	
Acetone	<	19.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	19.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	19.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	19.0	UG/KG	06/11/10	8260BM	
Styrene	<	19.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	19.0	UG/KG	06/11/10	8260BM	

09 231

Sample Number: 485632  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0910  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		25.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	19.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	19.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	19.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	19.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	19.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	19.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	19.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	19.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	19.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	19.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	19.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	19.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	19.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	19.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	19.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		90
1,2-DICHLOROETHANE-D4		103
TOLUENE-D8		105

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS



Sample Number: 485632  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0910  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
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OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

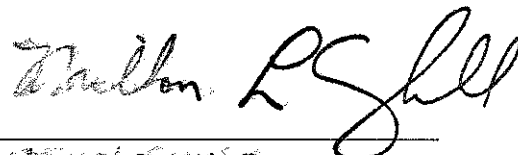
SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWSS-6

ANALYST'S COMMENTS:

\*

\* ANALYST

  
Milton R. Campbell  
State Environmental Laboratory

Sample Number: 485640  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1110  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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LWSS-7

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485640  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1110  
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**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		9.00	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		93
TOLUENE-D8		102
1,2-DICHLOROETHANE-D4		98

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485640  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1110  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
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Station:  
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Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

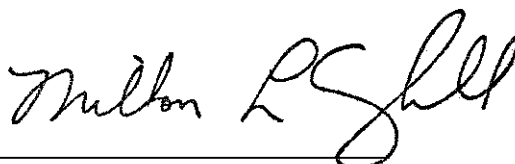
SAMPLERS COMMENTS:

LWSS-7

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485644  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1445  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

*LWSS-8*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.40		06/11/10	8260BM	
Benzene	<	14.0	UG/KG	06/11/10	8260BM	
Bromoform	<	14.0	UG/KG	06/11/10	8260BM	
Carbon tetrachloride	<	14.0	UG/KG	06/11/10	8260BM	
Chlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
Dibromochloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroethane	<	14.0	UG/KG	06/11/10	8260BM	
Chloroform	<	14.0	UG/KG	06/11/10	8260BM	
Bromodichloromethane	<	14.0	UG/KG	06/11/10	8260BM	
Ethylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
Methyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
Methylene chloride	<	14.0	UG/KG	06/11/10	8260BM	
Tetrachloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Toluene	<	14.0	UG/KG	06/11/10	8260BM	
Trichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Vinyl chloride	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
1,1,1-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2,2-Tetrachloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloroethane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichloropropane	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
trans-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,3-Dichloropropene	<	14.0	UG/KG	06/11/10	8260BM	
Total Xylenes	<	14.0	UG/KG	06/11/10	8260BM	
Acetone	<	14.0	UG/KG	06/11/10	8260BM	
Methylethyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
2-Hexanone	<	14.0	UG/KG	06/11/10	8260BM	
Methylisobutyl ketone	<	14.0	UG/KG	06/11/10	8260BM	
Styrene	<	14.0	UG/KG	06/11/10	8260BM	
Carbon disulfide	<	14.0	UG/KG	06/11/10	8260BM	

Sample Number: 485644  
 Project Code: SW-SP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1445  
 Date Received: 6/11/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
% Moisture - GC/MS Lab		14.0	%	06/15/10	1005 M	
Dichlorodifluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
Trichlorofluoromethane	<	14.0	UG/KG	06/11/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	14.0	UG/KG	06/11/10	8260BM	
Methyl Acetate	<	14.0	UG/KG	06/11/10	8260BM	
Methyl tert-butyl ether (M	<	14.0	UG/KG	06/11/10	8260BM	
cis-1,2-Dichloroethene	<	14.0	UG/KG	06/11/10	8260BM	
Cyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
Methylcyclohexane	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromoethane	<	14.0	UG/KG	06/11/10	8260BM	
Isopropylbenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,3-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,4-Dichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	
1,2-Dibromo-3-chloropropane	<	14.0	UG/KG	06/11/10	8260BM	
1,2,4-Trichlorobenzene	<	14.0	UG/KG	06/11/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		98
TOLUENE-D8		109
4-BROMOFLUOROBENZENE		87

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485644  
Project Code: SW-SP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1445  
Date Received: 6/11/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: LAND PROTECTION DIVISION

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-8

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\*

\* ANALYST

# **Surface Soils SVOCs (LWSS 1-9)**



Sample Number: 485660  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1515  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

LWSS-9

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabi		44.0				
Acenaphthylene	<	440	UG/KG	06/21/10	8270DM	
Acenaphthene	<	440	UG/KG	06/21/10	8270DM	
Anthracene	<	440	UG/KG	06/21/10	8270DM	
Benzo(b)fluoranthene	<	440	UG/KG	06/21/10	8270DM	
Benzo(k)fluoranthene	<	440	UG/KG	06/21/10	8270DM	
Benzo(a)pyrene	<	440	UG/KG	06/21/10	8270DM	
Bis(2-chloroethyl)ether	<	440	UG/KG	06/21/10	8270DM	
Bis(2-chloroethoxy)methane	<	440	UG/KG	06/21/10	8270DM	
Bis(2-chloroisopropyl)ethe	<	440	UG/KG	06/21/10	8270DM	
Butylbenzylphthalate	<	440	UG/KG	06/21/10	8270DM	
Chrysene	<	440	UG/KG	06/21/10	8270DM	
Diethylphthalate	<	440	UG/KG	06/21/10	8270DM	
Dimethylphthalate	<	440	UG/KG	06/21/10	8270DM	
Fluoranthene	<	440	UG/KG	06/21/10	8270DM	
Fluorene	<	440	UG/KG	06/21/10	8270DM	
Hexachlorocyclopentadiene	<	440	UG/KG	06/21/10	8270DM	
Hexachloroethane	<	440	UG/KG	06/21/10	8270DM	
Indeno(123cd)pyrene	<	440	UG/KG	06/21/10	8270DM	
Isophorone	<	440	UG/KG	06/21/10	8270DM	
Nitrosodipropylamine	<	440	UG/KG	06/21/10	8270DM	
Nitrosodiphenylamine	<	440	UG/KG	06/21/10	8270DM	
Naphthalene	<	440	UG/KG	06/21/10	8270DM	
Nitrobenzene	<	440	UG/KG	06/21/10	8270DM	
p-Chloro-m-cresol	<	440	UG/KG	06/21/10	8270DM	
Phenanthrene	<	440	UG/KG	06/21/10	8270DM	
Pyrene	<	440	UG/KG	06/21/10	8270DM	
Benzo(ghi)perylene	<	440	UG/KG	06/21/10	8270DM	
Benzo(a)anthracene	<	440	UG/KG	06/21/10	8270DM	
Dibenzo(ah)anthracene	<	440	UG/KG	06/21/10	8270DM	
2-Chloronaphthalene	<	440	UG/KG	06/21/10	8270DM	
2-Chlorophenol	<	440	UG/KG	06/21/10	8270DM	
2-Nitrophenol	<	440	UG/KG	06/21/10	8270DM	

Sample Number: 485660  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1515  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
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**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	440	UG/KG	06/21/10	8270DM	
2,4-Dichlorophenol	<	440	UG/KG	06/21/10	8270DM	
2,4-Dimethylphenol	<	440	UG/KG	06/21/10	8270DM	
2,4-Dinitrotoluene	<	440	UG/KG	06/21/10	8270DM	
2,4-Dinitrophenol	<	2200	UG/KG	06/21/10	8270DM	
2,4,6-Trichlorophenol	<	2200	UG/KG	06/21/10	8270DM	
2,6-Dinitrotoluene	<	440	UG/KG	06/21/10	8270DM	
3,3'-Dichlorobenzidine	<	880	UG/KG	06/21/10	8270DM	
4-Bromophenylphenyl ether	<	440	UG/KG	06/21/10	8270DM	
4-Chlorophenylphenyl ether	<	440	UG/KG	06/21/10	8270DM	
4-Nitrophenol	<	2200	UG/KG	06/21/10	8270DM	
4,6-Dinitro-o-cresol	<	2200	UG/KG	06/21/10	8270DM	
Phenol	<	440	UG/KG	06/21/10	8270DM	
Pentachlorophenol	<	2200	UG/KG	06/21/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	440	UG/KG	06/21/10	8270DM	
Di-n-butylphthalate	<	440	UG/KG	06/21/10	8270DM	
Hexachlorobenzene	<	440	UG/KG	06/21/10	8270DM	
Hexachlorobutadiene	<	440	UG/KG	06/21/10	8270DM	
Benzyl alcohol	<	440	UG/KG	06/21/10	8270DM	
Dibenzofuran	<	440	UG/KG	06/21/10	8270DM	
2-Methylphenol	<	440	UG/KG	06/21/10	8270DM	
4-Methylphenol	<	440	UG/KG	06/21/10	8270DM	
2,4,5-Trichlorophenol	<	2200	UG/KG	06/21/10	8270DM	
4-Chloroaniline	<	440	UG/KG	06/21/10	8270DM	
2-Nitroaniline	<	2200	UG/KG	06/21/10	8270DM	
3-Nitroaniline	<	2200	UG/KG	06/21/10	8270DM	
4-Nitroaniline	<	2200	UG/KG	06/21/10	8270DM	
2-Methylnaphthalene	<	440	UG/KG	06/21/10	8270DM	
% Moisture - GC/MS Lab		15.	%	06/21/10	1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		58
2,4,6-TRIBROMOPHENOL		71

Sample Number: 485660  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1515  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		48
PHENOL-D5		66
P-TERPHENYL-D14		72
NITROBENZENE-D5		64

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Hexadecanoic acid, 2-hydroxy-1-		470	µg/kg
Octadecanoic acid, 2-hydroxy-1-		980	µg/kg

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-9

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The names of the tentatively identified compounds were truncated in the report table; the complete names are:

Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485649  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*Handwritten:*  
 6/10/10  
 LWSS-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		36.0				
Acenaphthylene	<	360	UG/KG	06/16/10	8270DM	
Acenaphthene	<	360	UG/KG	06/16/10	8270DM	
Anthracene	<	360	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	360	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	360	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	360	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	360	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	360	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	360	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	360	UG/KG	06/16/10	8270DM	
Chrysene	<	360	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	360	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	360	UG/KG	06/16/10	8270DM	
Fluoranthene	<	360	UG/KG	06/16/10	8270DM	
Fluorene	<	360	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	360	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	360	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	360	UG/KG	06/16/10	8270DM	
Isophorone	<	360	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	360	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	360	UG/KG	06/16/10	8270DM	
Naphthalene	<	360	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	360	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	360	UG/KG	06/16/10	8270DM	
Phenanthrene	<	360	UG/KG	06/16/10	8270DM	
Pyrene	<	360	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	360	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	360	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	360	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	360	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	360	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	360	UG/KG	06/16/10	8270DM	

Sample Number: 485649  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
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**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	360	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	360	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	360	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	360	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	360	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	720	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	360	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	360	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/16/10	8270DM	
Phenol	<	360	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	360	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	360	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	360	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	360	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	360	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	360	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	360	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	360	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	360	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	360	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		9.20	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		81
2-FLUOROBIPHENYL		59

Sample Number: 485649  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
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Report Date: 7/1/2010

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Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2, 4, 6-TRIBROMOPHENOL		70
2-FLUOROPHENOL		61
NITROBENZENE-D5		69
PHENOL-D5		70

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-1

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485650  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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**STATE ENVIRONMENTAL LABORATORY**  
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**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

LW95-2

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		39.0				
Acenaphthylene	<	390	UG/KG	06/16/10	8270DM	
Acenaphthene	<	390	UG/KG	06/16/10	8270DM	
Anthracene	<	390	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ethe:	<	390	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	390	UG/KG	06/16/10	8270DM	
Chrysene	<	390	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	390	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	390	UG/KG	06/16/10	8270DM	
Fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Fluorene	<	390	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	390	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	390	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	390	UG/KG	06/16/10	8270DM	
Isophorone	<	390	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	390	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	390	UG/KG	06/16/10	8270DM	
Naphthalene	<	390	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	390	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	390	UG/KG	06/16/10	8270DM	
Phenanthrene	<	390	UG/KG	06/16/10	8270DM	
Pyrene	<	390	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	390	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	390	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	390	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	390	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	390	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	390	UG/KG	06/16/10	8270DM	

Sample Number: 485650  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0933  
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 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	390	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	390	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	390	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	390	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1900	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	390	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	780	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	390	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	390	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1900	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1900	UG/KG	06/16/10	8270DM	
Phenol	<	390	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1900	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	390	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	390	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	390	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	390	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	390	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	390	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	390	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	390	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	390	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	390	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		11.2	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		47
NITROBENZENE-D5		59



Sample Number: 485650  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
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OKLAHOMA CITY  
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Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2, 4, 6-TRIBROMOPHENOL		62
P-TERPHENYL-D14		74
2-FLUOROPHENOL		54
PHENOL-D5		63

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-2

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485651  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1000  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

CC: FILE COPY

*WSS-3*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		39.0				
Acenaphthylene	<	390	UG/KG	06/16/10	8270DM	
Acenaphthene	<	390	UG/KG	06/16/10	8270DM	
Anthracene	<	390	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	390	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	390	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	390	UG/KG	06/16/10	8270DM	
Chrysene	<	390	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	390	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	390	UG/KG	06/16/10	8270DM	
Fluoranthene	<	390	UG/KG	06/16/10	8270DM	
Fluorene	<	390	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	390	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	390	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	390	UG/KG	06/16/10	8270DM	
Isophorone	<	390	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	390	UG/KG	06/16/10	8270DM	
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Nitrobenzene	<	390	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	390	UG/KG	06/16/10	8270DM	
Phenanthrene	<	390	UG/KG	06/16/10	8270DM	
Pyrene	<	390	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	390	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	390	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	390	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	390	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	390	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	390	UG/KG	06/16/10	8270DM	

Sample Number: 485651  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1000  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	390	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	390	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	390	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	390	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1900	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	390	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	780	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	390	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	390	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1900	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1900	UG/KG	06/16/10	8270DM	
Phenol	<	390	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1900	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	390	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	390	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	390	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	390	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	390	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	390	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	390	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	390	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	390	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	390	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		10.6	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		45
P-TERPHENYL-D14		71

Sample Number: 485651  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1000  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
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OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		61
PHENOL-D5		71
NITROBENZENE-D5		74
2,4,6-TRIBROMOPHENOL		59

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-3

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485656  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1120  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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LW65-4

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractabl		36.0				
Acenaphthylene	<	360	UG/KG	06/21/10	8270DM	
Acenaphthene	<	360	UG/KG	06/21/10	8270DM	
Anthracene	<	360	UG/KG	06/21/10	8270DM	
Benzo(b)fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Benzo(k)fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Benzo(a)pyrene	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroethyl)ether	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroethoxy)methane	<	360	UG/KG	06/21/10	8270DM	
Bis(2-chloroisopropyl)ethe	<	360	UG/KG	06/21/10	8270DM	
Butylbenzylphthalate	<	360	UG/KG	06/21/10	8270DM	
Chrysene	<	360	UG/KG	06/21/10	8270DM	
Diethylphthalate	<	360	UG/KG	06/21/10	8270DM	
Dimethylphthalate	<	360	UG/KG	06/21/10	8270DM	
Fluoranthene	<	360	UG/KG	06/21/10	8270DM	
Fluorene	<	360	UG/KG	06/21/10	8270DM	
Hexachlorocyclopentadiene	<	360	UG/KG	06/21/10	8270DM	
Hexachloroethane	<	360	UG/KG	06/21/10	8270DM	
Indeno(123cd)pyrene	<	360	UG/KG	06/21/10	8270DM	
Isophorone	<	360	UG/KG	06/21/10	8270DM	
Nitrosodipropylamine	<	360	UG/KG	06/21/10	8270DM	
Nitrosodiphenylamine	<	360	UG/KG	06/21/10	8270DM	
Naphthalene	<	360	UG/KG	06/21/10	8270DM	
Nitrobenzene	<	360	UG/KG	06/21/10	8270DM	
p-Chloro-m-cresol	<	360	UG/KG	06/21/10	8270DM	
Phenanthrene	<	360	UG/KG	06/21/10	8270DM	
Pyrene	<	360	UG/KG	06/21/10	8270DM	
Benzo(ghi)perylene	<	360	UG/KG	06/21/10	8270DM	
Benzo(a)anthracene	<	360	UG/KG	06/21/10	8270DM	
Dibenzo(ah)anthracene	<	360	UG/KG	06/21/10	8270DM	
2-Chloronaphthalene	<	360	UG/KG	06/21/10	8270DM	
2-Chlorophenol	<	360	UG/KG	06/21/10	8270DM	
2-Nitrophenol	<	360	UG/KG	06/21/10	8270DM	

Sample Number: 485656  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1120  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	360	UG/KG	06/21/10	8270DM	
2,4-Dichlorophenol	<	360	UG/KG	06/21/10	8270DM	
2,4-Dimethylphenol	<	360	UG/KG	06/21/10	8270DM	
2,4-Dinitrotoluene	<	360	UG/KG	06/21/10	8270DM	
2,4-Dinitrophenol	<	1800	UG/KG	06/21/10	8270DM	
2,4,6-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
2,6-Dinitrotoluene	<	360	UG/KG	06/21/10	8270DM	
3,3'-Dichlorobenzidine	<	720	UG/KG	06/21/10	8270DM	
4-Bromophenylphenyl ether	<	360	UG/KG	06/21/10	8270DM	
4-Chlorophenylphenyl ether	<	360	UG/KG	06/21/10	8270DM	
4-Nitrophenol	<	1800	UG/KG	06/21/10	8270DM	
4,6-Dinitro-o-cresol	<	1800	UG/KG	06/21/10	8270DM	
Phenol	<	360	UG/KG	06/21/10	8270DM	
Pentachlorophenol	<	1800	UG/KG	06/21/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	360	UG/KG	06/21/10	8270DM	
Di-n-butylphthalate	<	360	UG/KG	06/21/10	8270DM	
Hexachlorobenzene	<	360	UG/KG	06/21/10	8270DM	
Hexachlorobutadiene	<	360	UG/KG	06/21/10	8270DM	
Benzyl alcohol	<	360	UG/KG	06/21/10	8270DM	
Dibenzofuran	<	360	UG/KG	06/21/10	8270DM	
2-Methylphenol	<	360	UG/KG	06/21/10	8270DM	
4-Methylphenol	<	360	UG/KG	06/21/10	8270DM	
2,4,5-Trichlorophenol	<	1800	UG/KG	06/21/10	8270DM	
4-Chloroaniline	<	360	UG/KG	06/21/10	8270DM	
2-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
3-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
4-Nitroaniline	<	1800	UG/KG	06/21/10	8270DM	
2-Methylnaphthalene	<	360	UG/KG	06/21/10	8270DM	
% Moisture - GC/MS Lab		7.8	%	06/21/10	1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		82
2-FLUOROPHENOL		72

Sample Number: 485656  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1120  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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EPA Drinking Water Certification #OK00013

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2, 4, 6-TRIBROMOPHENOL		92
P-TERPHENYL-D14		90
2-FLUOROBIPHENYL		75
PHENOL-D5		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Octadecanoic acid, 2-hydroxy-1-		720	µg/kg

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-4

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The name of the tentatively identified compound was truncated in the report table; the complete name is:

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST Cassandra Kontas

Sample Number: 485652  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1007  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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*LWSS-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		38.0				
Acenaphthylene	<	380	UG/KG	06/16/10	8270DM	
Acenaphthene	<	380	UG/KG	06/16/10	8270DM	
Anthracene	<	380	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	380	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	380	UG/KG	06/16/10	8270DM	
Chrysene	<	380	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	380	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	380	UG/KG	06/16/10	8270DM	
Fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Fluorene	<	380	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	380	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	380	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	380	UG/KG	06/16/10	8270DM	
Isophorone	<	380	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	380	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	380	UG/KG	06/16/10	8270DM	
Naphthalene	<	380	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	380	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	380	UG/KG	06/16/10	8270DM	
Phenanthrene	<	380	UG/KG	06/16/10	8270DM	
Pyrene	<	380	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	380	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	380	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	380	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	380	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	380	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	380	UG/KG	06/16/10	8270DM	



Sample Number: 485652  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1007  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
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 Report Date: 7/1/2010

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To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	380	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	380	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	380	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	380	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1900	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	380	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	760	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	380	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	380	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1900	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1900	UG/KG	06/16/10	8270DM	
Phenol	<	380	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1900	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	380	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	380	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	380	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	380	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	380	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	380	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	380	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	380	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	380	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	380	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		7.79	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROPHENOL		62
PHENOL-D5		71

Sample Number: 485652  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1007  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
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OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2, 4, 6-TRIBROMOPHENOL		67
NITROBENZENE-D5		71
2-FLUOROBIPHENYL		56
P-TERPHENYL-D14		81

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
D-Friedoolean-14-ene, 3-methoxy		2000	µg/kg

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-5

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The name of the tentatively identified compound was truncated in the report table; the compound's full name is: D-FRIEDOOLEAN-14-ENE, 3-METHOXY-, (3.BETA.)-

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485647  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0910  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**OKLAHOMA, 73102-6010**  
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 Sample Receiving: (405) 702-1113  
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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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LWSS-6

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab		44.0				
Acenaphthylene	<	440	UG/KG	06/16/10	8270DM	
Acenaphthene	<	440	UG/KG	06/16/10	8270DM	
Anthracene	<	440	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	440	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	440	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	440	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	440	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	440	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	440	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	440	UG/KG	06/16/10	8270DM	
Chrysene	<	440	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	440	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	440	UG/KG	06/16/10	8270DM	
Fluoranthene	<	440	UG/KG	06/16/10	8270DM	
Fluorene	<	440	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	440	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	440	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	440	UG/KG	06/16/10	8270DM	
Isophorone	<	440	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	440	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	440	UG/KG	06/16/10	8270DM	
Naphthalene	<	440	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	440	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	440	UG/KG	06/16/10	8270DM	
Phenanthrene	<	440	UG/KG	06/16/10	8270DM	
Pyrene	<	440	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	440	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	440	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	440	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	440	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	440	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	440	UG/KG	06/16/10	8270DM	

Sample Number: 485647  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 0910  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	440	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	440	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	440	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	440	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	2200	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	2200	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	440	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	880	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	440	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	440	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	2200	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	2200	UG/KG	06/16/10	8270DM	
Phenol	<	440	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	2200	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	440	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	440	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	440	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	440	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	440	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	440	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	440	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	440	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	2200	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	440	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	2200	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	2200	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	2200	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	440	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		24.8	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2,4,6-TRIBROMOPHENOL		49
2-FLUOROBIPHENYL		35

Sample Number: 485647  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0910  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
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To: TODD DOWNHAM/LPD

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		67
PHENOL-D5		74
2-FLUOROPHENOL		65
P-TERPHENYL-D14		55

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-6

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas

Sample Number: 485655  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1110  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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*WSS-7*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab.		38.0				
Acenaphthylene	<	380	UG/KG	06/16/10	8270DM	
Acenaphthene	<	380	UG/KG	06/16/10	8270DM	
Anthracene	<	380	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	380	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ether	<	380	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	380	UG/KG	06/16/10	8270DM	
Chrysene	<	380	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	380	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	380	UG/KG	06/16/10	8270DM	
Fluoranthene	<	380	UG/KG	06/16/10	8270DM	
Fluorene	<	380	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	380	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	380	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	380	UG/KG	06/16/10	8270DM	
Isophorone	<	380	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	380	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	380	UG/KG	06/16/10	8270DM	
Naphthalene	<	380	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	380	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	380	UG/KG	06/16/10	8270DM	
Phenanthrene	<	380	UG/KG	06/16/10	8270DM	
Pyrene	<	380	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	380	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	380	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	380	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	380	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	380	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	380	UG/KG	06/16/10	8270DM	

Sample Number: 485655  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1110  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	380	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	380	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	380	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	380	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	1900	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	380	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	760	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	380	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	380	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	1900	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	1900	UG/KG	06/16/10	8270DM	
Phenol	<	380	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	1900	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	380	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	380	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	380	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	380	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	380	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	380	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	380	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	380	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	1900	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	380	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	1900	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	380	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		9.46	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
P-TERPHENYL-D14		69
PHENOL-D5		67

Sample Number: 485655  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1110  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
NITROBENZENE-D5		64
2,4,6-TRIBROMOPHENOL		69
2-FLUOROPHENOL		55
2-FLUOROBIPHENYL		44

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
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NU

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-7

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

(NU) The analysis indicates no 'tentatively identified' compounds present above the reporting limit for this analysis.

\*

\* ANALYST

Cassandra Kontas



Sample Number: 485659  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1445  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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 Sample Receiving: (405) 702-1113  
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*LW55-8*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Extractab:		42.0				
Acenaphthylene	<	420	UG/KG	06/16/10	8270DM	
Acenaphthene	<	420	UG/KG	06/16/10	8270DM	
Anthracene	<	420	UG/KG	06/16/10	8270DM	
Benzo(b)fluoranthene	<	420	UG/KG	06/16/10	8270DM	
Benzo(k)fluoranthene	<	420	UG/KG	06/16/10	8270DM	
Benzo(a)pyrene	<	420	UG/KG	06/16/10	8270DM	
Bis(2-chloroethyl)ether	<	420	UG/KG	06/16/10	8270DM	
Bis(2-chloroethoxy)methane	<	420	UG/KG	06/16/10	8270DM	
Bis(2-chloroisopropyl)ethe:	<	420	UG/KG	06/16/10	8270DM	
Butylbenzylphthalate	<	420	UG/KG	06/16/10	8270DM	
Chrysene	<	420	UG/KG	06/16/10	8270DM	
Diethylphthalate	<	420	UG/KG	06/16/10	8270DM	
Dimethylphthalate	<	420	UG/KG	06/16/10	8270DM	
Fluoranthene	<	420	UG/KG	06/16/10	8270DM	
Fluorene	<	420	UG/KG	06/16/10	8270DM	
Hexachlorocyclopentadiene	<	420	UG/KG	06/16/10	8270DM	
Hexachloroethane	<	420	UG/KG	06/16/10	8270DM	
Indeno(123cd)pyrene	<	420	UG/KG	06/16/10	8270DM	
Isophorone	<	420	UG/KG	06/16/10	8270DM	
Nitrosodipropylamine	<	420	UG/KG	06/16/10	8270DM	
Nitrosodiphenylamine	<	420	UG/KG	06/16/10	8270DM	
Naphthalene	<	420	UG/KG	06/16/10	8270DM	
Nitrobenzene	<	420	UG/KG	06/16/10	8270DM	
p-Chloro-m-cresol	<	420	UG/KG	06/16/10	8270DM	
Phenanthrene	<	420	UG/KG	06/16/10	8270DM	
Pyrene	<	420	UG/KG	06/16/10	8270DM	
Benzo(ghi)perylene	<	420	UG/KG	06/16/10	8270DM	
Benzo(a)anthracene	<	420	UG/KG	06/16/10	8270DM	
Dibenzo(ah)anthracene	<	420	UG/KG	06/16/10	8270DM	
2-Chloronaphthalene	<	420	UG/KG	06/16/10	8270DM	
2-Chlorophenol	<	420	UG/KG	06/16/10	8270DM	
2-Nitrophenol	<	420	UG/KG	06/16/10	8270DM	

Sample Number: 485659  
 Project Code: SW-SE  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1445  
 Date Received: 6/10/2010  
 Date Completed: 07/01/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 7/1/2010

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Di-n-octylphthalate	<	420	UG/KG	06/16/10	8270DM	
2,4-Dichlorophenol	<	420	UG/KG	06/16/10	8270DM	
2,4-Dimethylphenol	<	420	UG/KG	06/16/10	8270DM	
2,4-Dinitrotoluene	<	420	UG/KG	06/16/10	8270DM	
2,4-Dinitrophenol	<	2100	UG/KG	06/16/10	8270DM	
2,4,6-Trichlorophenol	<	2100	UG/KG	06/16/10	8270DM	
2,6-Dinitrotoluene	<	420	UG/KG	06/16/10	8270DM	
3,3'-Dichlorobenzidine	<	840	UG/KG	06/16/10	8270DM	
4-Bromophenylphenyl ether	<	420	UG/KG	06/16/10	8270DM	
4-Chlorophenylphenyl ether	<	420	UG/KG	06/16/10	8270DM	
4-Nitrophenol	<	2100	UG/KG	06/16/10	8270DM	
4,6-Dinitro-o-cresol	<	2100	UG/KG	06/16/10	8270DM	
Phenol	<	420	UG/KG	06/16/10	8270DM	
Pentachlorophenol	<	2100	UG/KG	06/16/10	8270DM	
Bis(2-ethylhexyl)phthalate	<	420	UG/KG	06/16/10	8270DM	
Di-n-butylphthalate	<	420	UG/KG	06/16/10	8270DM	
Hexachlorobenzene	<	420	UG/KG	06/16/10	8270DM	
Hexachlorobutadiene	<	420	UG/KG	06/16/10	8270DM	
Benzyl alcohol	<	420	UG/KG	06/16/10	8270DM	
Dibenzofuran	<	420	UG/KG	06/16/10	8270DM	
2-Methylphenol	<	420	UG/KG	06/16/10	8270DM	
4-Methylphenol	<	420	UG/KG	06/16/10	8270DM	
2,4,5-Trichlorophenol	<	2100	UG/KG	06/16/10	8270DM	
4-Chloroaniline	<	420	UG/KG	06/16/10	8270DM	
2-Nitroaniline	<	2100	UG/KG	06/16/10	8270DM	
3-Nitroaniline	<	2100	UG/KG	06/16/10	8270DM	
4-Nitroaniline	<	2100	UG/KG	06/16/10	8270DM	
2-Methylnaphthalene	<	420	UG/KG	06/16/10	8270DM	
% Moisture - GC/MS Lab		14.0	%		1005 M	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2,4,6-TRIBROMOPHENOL		71
NITROBENZENE-D5		55

Sample Number: 485659  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1445  
Date Received: 6/10/2010  
Date Completed: 07/01/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 7/1/2010

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EPA Drinking Water Certification #OK00013

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COMPOUND	SURROGATE RECOVERIES	RECOVERY %
2-FLUOROBIPHENYL		45
P-TERPHENYL-D14		66
PHENOL-D5		60
2-FLUOROPHENOL		49

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
Hexadecanoic acid, 2-hydroxy-1-		460	µg/kg
Octadecanoic acid, 2-hydroxy-1-		940	µg/kg

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-8

ANALYST'S COMMENTS:

Analyst: Cassandra Kontas

The analysis indicates the presence of one or more compounds that have been 'tentatively identified,' and the associated numerical values represent their approximate concentration.

The names of the tentatively identified compounds were truncated in the report table; the complete names are:

Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

\*

\* ANALYST

*Cassandra Kontas*

# **Surface Soils Metals**

## **(LWSS 1-9)**

Sample Number: 485649  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
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**707 N. ROBINSON**  
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General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
**EPA Drinking Water Certification #OK00013**

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		37.4	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		9.90	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		8.00	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		99.4	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

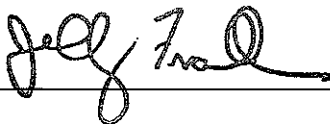
SAMPLERS COMMENTS:

LWSS-1

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485650  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0933  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

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OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		46.4	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		11.8	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		8.30	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		90.3	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

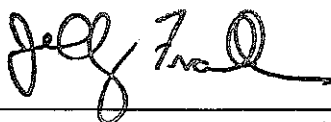
SAMPLERS COMMENTS:

LWSS-2

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485651  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1000  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
FWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

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OKLAHOMA, 73102-6010  
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Sample Receiving: (405) 702-1113  
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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		94.7	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		19.4	MG/KG	06/16/10	6010	
Copper, Sediment		10.5	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment		10.9	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		20.8	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		100	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

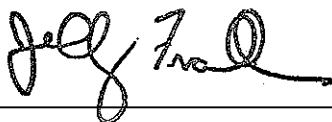
SAMPLERS COMMENTS:

LWSS-3

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485656  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1120  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment		19.8	MG/KG	06/16/10	6020	
Barium, Sediment		44.1	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		34.8	MG/KG	06/16/10	6010	
Copper, Sediment		52.1	MG/KG	06/16/10	6010	
Lead, Sediment		15.7	MG/KG	06/16/10	6010	
Nickel, Sediment		23.6	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		25.9	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		91.9	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

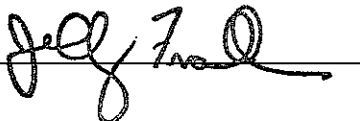
SAMPLERS COMMENTS:

LWSS-4

ANALYST'S COMMENTS:

\*

\* ANALYST





Sample Number: 485652  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1007  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		63.1	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		11.0	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment		15.4	MG/KG	06/16/10	6010	
Nickel, Sediment		5.80	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		25.6	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		91.1	%	06/21/10	CLP 5.4	

**Summary**

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-5

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485647  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 0910  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment		7.60	MG/KG	06/16/10	6020	
Barium, Sediment		81.7	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		19.2	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		20.6	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		81.1	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

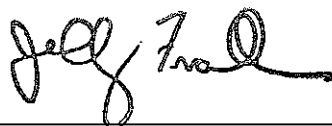
Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-6

ANALYST'S COMMENTS:



\*

\* ANALYST

Sample Number: 485655  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1110  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		28.9	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		8.60	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment	<	10.0	MG/KG	06/16/10	6010	
Nickel, Sediment		4.60	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		20.2	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/17/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		90.4	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-7

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485659  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1445  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		59.8	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		11.1	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment		13.0	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		71.4	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/17/10	6010	
Thallium, Sediment		12.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		86.0	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

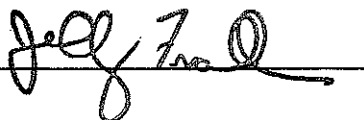
SAMPLERS COMMENTS:

LWSS-8

ANALYST'S COMMENTS:

\*

\* ANALYST



Sample Number: 485660  
Project Code: SW-SE  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1515  
Date Received: 6/10/2010  
Date Completed: 06/28/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/28/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by Metals**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*Background*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Arsenic, Sediment	<	10.0	MG/KG	06/16/10	6020	
Barium, Sediment		118	MG/KG	06/16/10	6020	
Beryllium, Sediment	<	2.00	MG/KG	06/16/10	6010	
Cadmium, Sediment	<	5.00	MG/KG	06/16/10	6010	
Chromium, Sediment		15.0	MG/KG	06/16/10	6010	
Copper, Sediment	<	5.00	MG/KG	06/16/10	6010	
Lead, Sediment		29.7	MG/KG	06/16/10	6010	
Nickel, Sediment	<	10.0	MG/KG	06/16/10	6010	
Silver, Sediment	<	5.00	MG/KG	06/16/10	6010	
Zinc, Sediment		141	MG/KG	06/16/10	6010	
Antimony, Sediment	<	10.0	MG/KG	06/16/10	6010	
Selenium, Sediment	<	10.0	MG/KG	06/17/10	6010	
Thallium, Sediment	<	10.0	MG/KG	06/16/10	6010	
Mercury, Sediment	<	0.25	MG/KG	06/25/10	7471	
% Solids		75.5	%	06/21/10	CLP 5.4	

Summary

Labs performing analysis on this Sample:

Metals GCMS

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:

LWSS-9

ANALYST'S COMMENTS:

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\* ANALYST

*Jeff Traill*

# **Groundwater VOCs**

## **(LWGW 1-10)**

Sample Number: 485626  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*EW6W-10*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485626  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		87
1,2-DICHLOROETHANE-D4		105
TOLUENE-D8		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE OFUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS



Sample Number: 485626  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
Date Received: 6/10/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

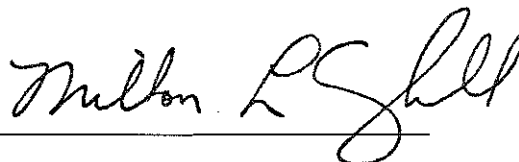
SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LWGW-10

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485360  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1105  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

CWG-1

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485360  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1105  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		109
TOLUENE-D8		98
4-BROMOFLUOROBENZENE		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485360  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1105  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWGW-1

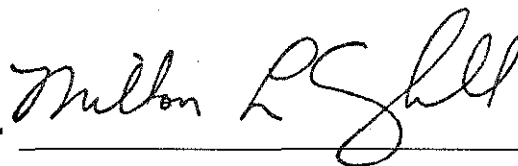
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485361  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1110  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*UW6W-2*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485361  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1110  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		89
1,2-DICHLOROETHANE-D4		104
TOLUENE-D8		99

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485361  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1110  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE RIFINERY ES

**SAMPLERS COMMENTS:**

LWGW-2

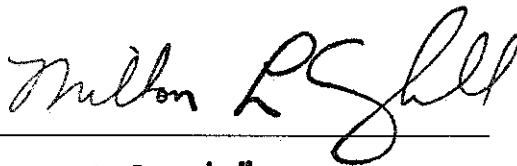
**SAMPLE RECEIVING COMMENTS:**

ICE; SAMPLE= 7.1

**ANALYST'S COMMENTS:**

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485362  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1130  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWBW-3*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	



Sample Number: 485362  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1130  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		99
4-BROMOFLUOROBENZENE		91
1,2-DICHLOROETHANE-D4		106

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485362  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1130  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:

LWG-3

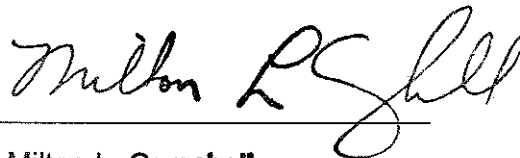
SAMPLE RECEIVING COMMENTS:

ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485363  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1255  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LW6W-4*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485363  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1255  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
TOLUENE-D8		98
1,2-DICHLOROETHANE-D4		105
4-BROMOFLUOROBENZENE		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485363  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1255  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
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Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

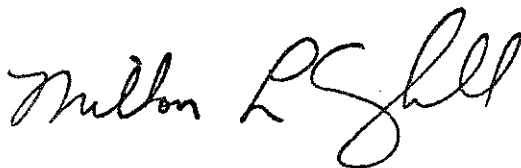
CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:  
LWGW-4

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:



\* ANALYST

Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485364  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1310  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWBW-5*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485364  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1310  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		88
1,2-DICHLOROETHANE-D4		105
TOLUENE-D8		98

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485364  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1310  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

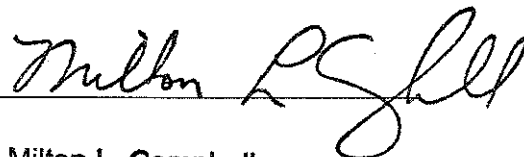
SAMPLERS COMMENTS:  
LWGW-5

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory



Sample Number: 485365  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1048  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*W6W-6*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485365  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1048  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		106
TOLUENE-D8		97
4-BROMOFLUOROBENZENE		89

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485365  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1048  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

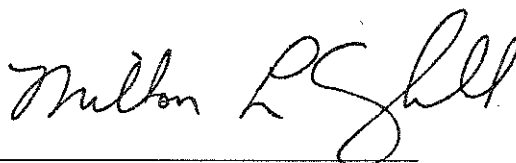
SAMPLERS COMMENTS:  
LWGW-6

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485366  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1030  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*CWBW-7*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

09 300

Sample Number: 485366  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1030  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		107
TOLUENE-D8		98
4-BROMOFLUOROBENZENE		88

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485366  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1030  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

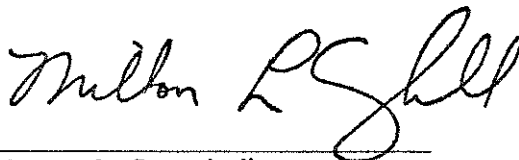
CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:  
LWGW-7

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:



\* ANALYST

Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485367  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 0925  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*LWBW-8*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485367  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 0925  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		103
4-BROMOFLUOROBENZENE		89
TOLUENE-D8		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS



Sample Number: 485367  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 0925  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

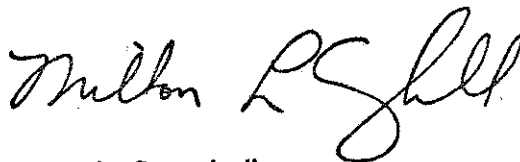
CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:  
LWGW-8

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\*

\* ANALYST

Sample Number: 485368  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

*W6W-9*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

09 306

Sample Number: 485368  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		109
4-BROMOFLUOROBENZENE		88
TOLUENE-D8		97

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485368  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

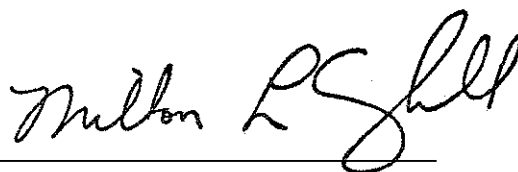
SAMPLERS COMMENTS:  
LWGW-9

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485369  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

FB

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	J	26.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	J	84.0	UG/L	06/10/10	8260BM	

Sample Number: 485369  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		91
1,2-DICHLOROETHANE-D4		103
TOLUENE-D8		100

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485369  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
STATE ENVIRONMENTAL LABORATORY  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY ES

SAMPLERS COMMENTS:  
FIELD BLANK

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:  
(J) The associated value is an estimated quantity.

\*

\* ANALYST

  
Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485370  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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 OKLAHOMA, 73102-6010  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

TB

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	



Sample Number: 485370  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected: 1333  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		103
4-BROMOFLUOROBENZENE		91
TOLUENE-D8		99

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485370  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected: 1333  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

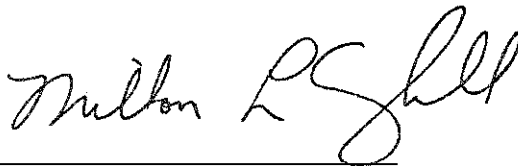
CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
TRIP BLANK

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\*

\* ANALYST

Sample Number: 485371  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
 707 N. ROBINSON  
 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

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(LB)

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485371  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/8/2010  
 Time Collected:  
 Date Received: 6/8/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
4-BROMOFLUOROBENZENE		91
TOLUENE-D8		99
1,2-DICHLOROETHANE-D4		101

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485371  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/8/2010  
Time Collected:  
Date Received: 6/8/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
707 N. ROBINSON  
OKLAHOMA CITY  
OKLAHOMA, 73102-6010  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY

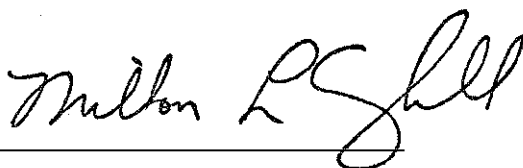
SAMPLERS COMMENTS:  
LAB BLANK

SAMPLE RECEIVING COMMENTS:  
ICE; SAMPLE= 7.1

ANALYST'S COMMENTS:

\*

\* ANALYST



Milton L. Campbell  
State Environmental Laboratory

Sample Number: 485627  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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*TB (CW6W-10)*

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485627  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
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 OKLAHOMA CITY  
 OKLAHOMA, 73102-6010  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

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Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		102
4-BROMOFLUOROBENZENE		88
TOLUENE-D8		96

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

**Summary**

Labs performing analysis on this Sample:

GCMS

Sample Number: 485627  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
Date Received: 6/10/2010  
Date Completed: 06/15/2010  
Collected By: TD  
PWS Id:  
Location Code:  
Station:  
Facility:  
Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
General Inquiries: 1-800-869-1400  
Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

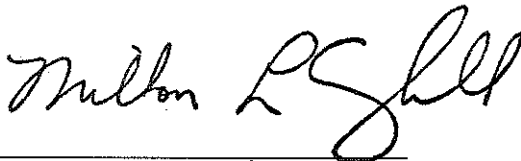
To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
TRIP BLANK

ANALYST'S COMMENTS:



\* ANALYST

Milton L. Campbell  
State Environmental Laboratory



Sample Number: 485628  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
 Location Code:  
 Station:  
 Facility:  
 Report Date: 6/15/2010

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**STATE ENVIRONMENTAL LABORATORY**  
**707 N. ROBINSON**  
**OKLAHOMA CITY**  
**OKLAHOMA, 73102-6010**  
 General Inquiries: 1-800-869-1400  
 Sample Receiving: (405) 702-1113  
**Report of Analysis by GCMS**  
 EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

LB

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dilution Factor, Purgeable:		1.00		06/10/10	8260BM	
Bromodichloromethane	<	10.0	UG/L	06/10/10	8260BM	
Carbon tetrachloride	<	10.0	UG/L	06/10/10	8260BM	
Bromoform	<	10.0	UG/L	06/10/10	8260BM	
Chloroform	<	10.0	UG/L	06/10/10	8260BM	
Toluene	<	10.0	UG/L	06/10/10	8260BM	
Benzene	<	10.0	UG/L	06/10/10	8260BM	
Chlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
Dibromochloromethane	<	10.0	UG/L	06/10/10	8260BM	
Chloroethane	<	10.0	UG/L	06/10/10	8260BM	
Ethylbenzene	<	10.0	UG/L	06/10/10	8260BM	
Bromomethane	<	10.0	UG/L	06/10/10	8260BM	
Methylene chloride	<	10.0	UG/L	06/10/10	8260BM	
Tetrachloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
1,1,1-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2,2-Tetrachloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloroethane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichloropropane	<	10.0	UG/L	06/10/10	8260BM	
trans-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
trans-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
cis-1,3-Dichloropropene	<	10.0	UG/L	06/10/10	8260BM	
Vinyl chloride	<	10.0	UG/L	06/10/10	8260BM	
Trichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Methylisobutyl ketone	<	10.0	UG/L	06/10/10	8260BM	
Carbon disulfide	<	10.0	UG/L	06/10/10	8260BM	
2-Hexanone	<	10.0	UG/L	06/10/10	8260BM	
Styrene	<	10.0	UG/L	06/10/10	8260BM	
Total Xylenes	<	10.0	UG/L	06/10/10	8260BM	
Acetone	<	10.0	UG/L	06/10/10	8260BM	
Methylethyl Ketone	<	10.0	UG/L	06/10/10	8260BM	

Sample Number: 485628  
 Project Code: SW-WP  
 Agency Number:  
 Date Collected: 6/9/2010  
 Time Collected: 1435  
 Date Received: 6/10/2010  
 Date Completed: 06/15/2010  
 Collected By: TD  
 PWS Id:  
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To: TODD DOWNHAM/LPD

CC: FILE COPY

Name	Qualifier	Value	Units	Analyzed	Method	Prep Type
Dichlorodifluoromethane	<	10.0	UG/L	06/10/10	8260BM	
Trichlorofluoromethane	<	10.0	UG/L	06/10/10	8260BM	
1,1,2-Trichloro-1,2,2-trifl	<	10.0	UG/L	06/10/10	8260BM	
Methyl Acetate	<	10.0	UG/L	06/10/10	8260BM	
Methyl tert-butyl ether (M	<	10.0	UG/L	06/10/10	8260BM	
cis-1,2-Dichloroethene	<	10.0	UG/L	06/10/10	8260BM	
Cyclohexane	<	10.0	UG/L	06/10/10	8260BM	
Methylcyclohexane	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromoethane	<	10.0	UG/L	06/10/10	8260BM	
Isopropylbenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,3-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,4-Dichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	
1,2-Dibromo-3-chloropropane	<	10.0	UG/L	06/10/10	8260BM	
1,2,4-Trichlorobenzene	<	10.0	UG/L	06/10/10	8260BM	

COMPOUND	SURROGATE RECOVERIES	RECOVERY %
1,2-DICHLOROETHANE-D4		101
4-BROMOFLUOROBENZENE		91
TOLUENE-D8		99

COMPOUND	TENTATIVELY IDENTIFIED BY NBS LIBRARY SEARCH	VALUE	UNITS
NONE FOUND		0	

Summary
---------

Labs performing analysis on this Sample:  
 GCMS

Sample Number: 485628  
Project Code: SW-WP  
Agency Number:  
Date Collected: 6/9/2010  
Time Collected: 1435  
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**Report of Analysis by GCMS**  
EPA Drinking Water Certification #OK00013

To: TODD DOWNHAM/LPD

CC: FILE COPY

SOURCE: LORRAINE REFINERY

SAMPLERS COMMENTS:  
LAB BLANK

ANALYST'S COMMENTS:



Milton L. Campbell  
State Environmental Laboratory

\* ANALYST

## **Reference 15**

## Records of Communication

August 3, 2009

Todd Downham  
Lorraine Refinery Expanded Site Inspection (ESI)

August 3, 2009: Spoke with Steve McGuire, Public Works Director, City of Bristow, Ok. Mr. McGuire answered my questions regarding the locations of Municipal Wells that provide drinking water to the City of Bristow. He provided a map with the names and locations of each well.

April 6, 2010

Todd Downham  
Lorraine Refinery Expanded Site Inspection (ESI)

April 6, 2010: Spoke with Steve McGuire, Public Works Director, City of Bristow, Ok. Mr. McGuire answered my questions regarding the locations of Municipal Wells that provide drinking water to the City of Bristow.

The Site boundary for the planned ESI for the Lorraine Refinery has expanded to include the former Wilcox Refinery Site, therefore updated information regarding public groundwater drinking wells is required. The map provided by the City of Bristow on August 3, 2009, which indicates the location of Municipal Drinking Water Wells, is current and will be used to determine the locations and rational outlined in the Sampling and Analysis Plan (SAP) and in the Lorraine Refinery ESI Final Report.

# Fax Sheet

August 3, 2009

**TO:** Tod Downham  
Dept. Environmental Quality  
(405) 702-5136

RECEIVED

AUG 3 2009

LAND PROTECTION DIVISION  
DEPARTMENT OF ENVIRONMENTAL QUALITY

**FROM:** Steve McGuire Public Works Director  
City of Bristow  
110 West 7<sup>th</sup> Street  
Bristow, Oklahoma 74010  
(918) 367-2237

---

***SUBJECT:*** City of Bristow Fresh Water Well Locations

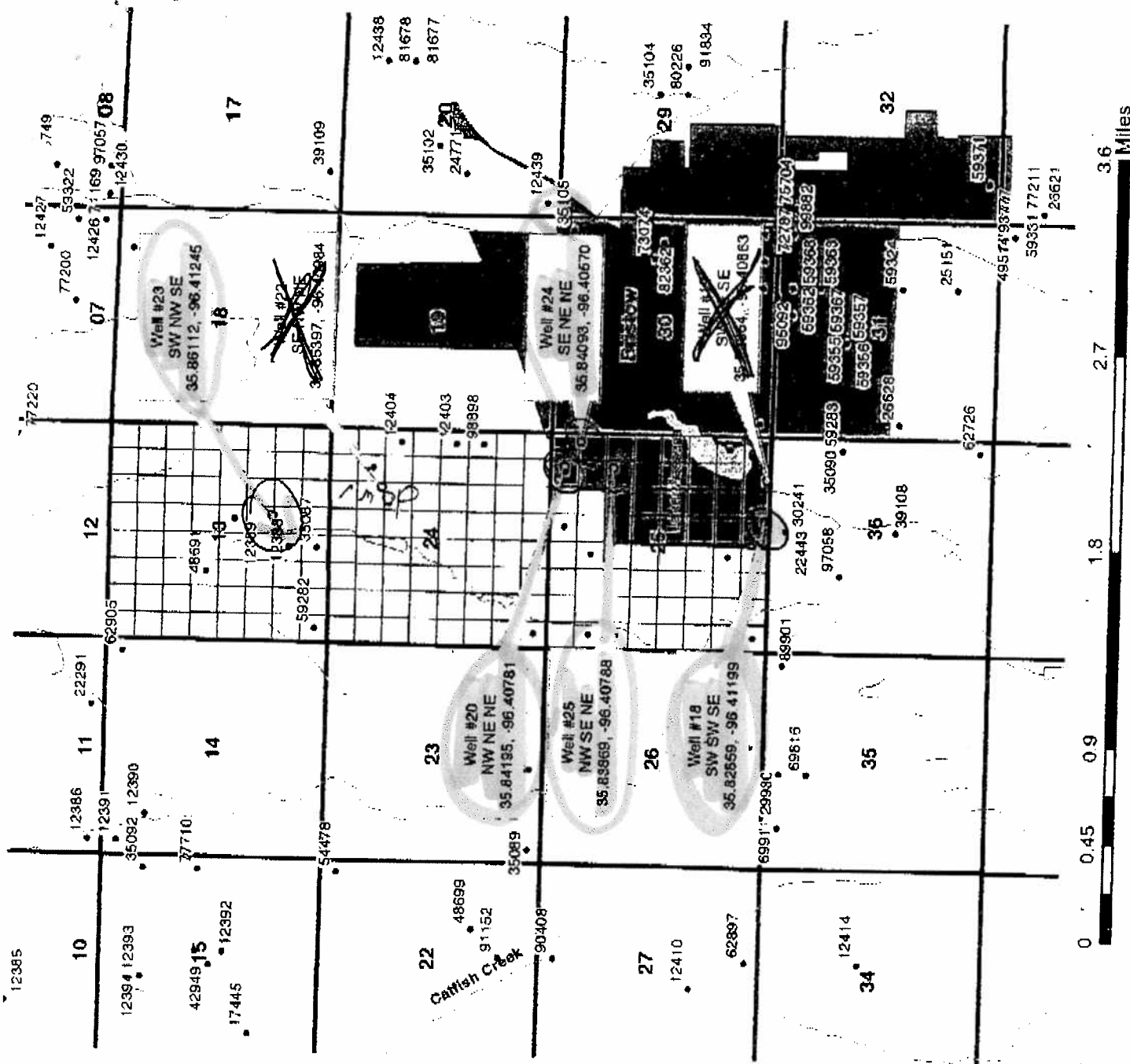
---

The following map indicates the locations of each City of Bristow water well in use located inside Creek County (T16N-R8E1M) including GPS locations

**Total sheets sent including this fax cover:** Two (2)

# City of Bristow Well Locations (All In T16N-R8EIM Creek County)

- Bristow GPS Well Locations
- 10-acre Tracts
- Lakes
- Streams - Full Detail
- Section Lines
- City Boundary
- Reported Well Logs



Map Created by: Bob Sandbo  
March 14, 2006  
GPS Readings Taken by: Gavin Brady  
March 1, 2006  
Oklahoma Water Resources Board

Attn: TOD Downham  
405-702-5101

From: City of Bristow

2008 Drinking Water  
Summary of Wells

Any Questions Call: <sup>918</sup> 277-6806

Eli Smallwood

RECEIVED

AUG 04 2009

LAND PROTECTION DIVISION  
DEPARTMENT OF ENVIRONMENTAL QUALITY



# City Of Bristow

## Public Works Division

110 West 7<sup>th</sup> Street

Bristow, Oklahoma 74010

### *Bristow Water Distribution System Information*

#### *Number of Water Wells:*

5 Active Wells

#### *Age of Wells & Distribution System:*

Well # 18	40 Years
Well # 20	30 Years
Well # 23	15 Years
Well # 24	15 Years
Well # 25	15 Years

#### *Capacity of Wells*

#### *Depths*

Well # 18	210'
Well # 20	470'
Well # 23	450'
Well # 24	450'
Well # 25	450'

#### *Average Volume Actually Pumped:*

Well # 18	129,000 gallon per-day
Well # 20	220,000 gallons Per-day
Well # 23	280,000 gallons per-day
Well # 24	140,000 gallons per-day
Well # 25	220,000 gallons per-day

#### *Leakage Estimate:*

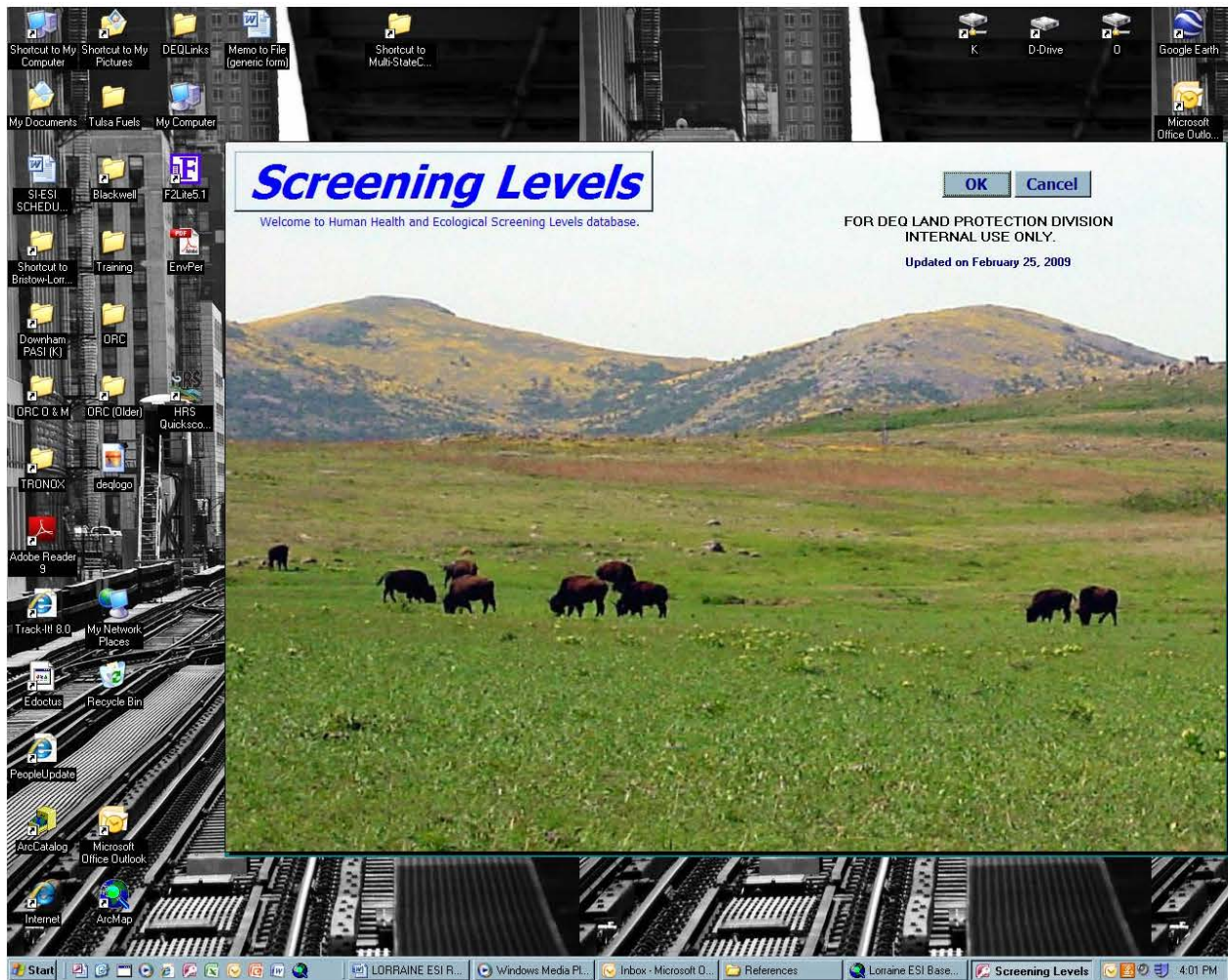
Approximately 6,449,112 gallons per year

#### *Number of Connection in Bristow:*

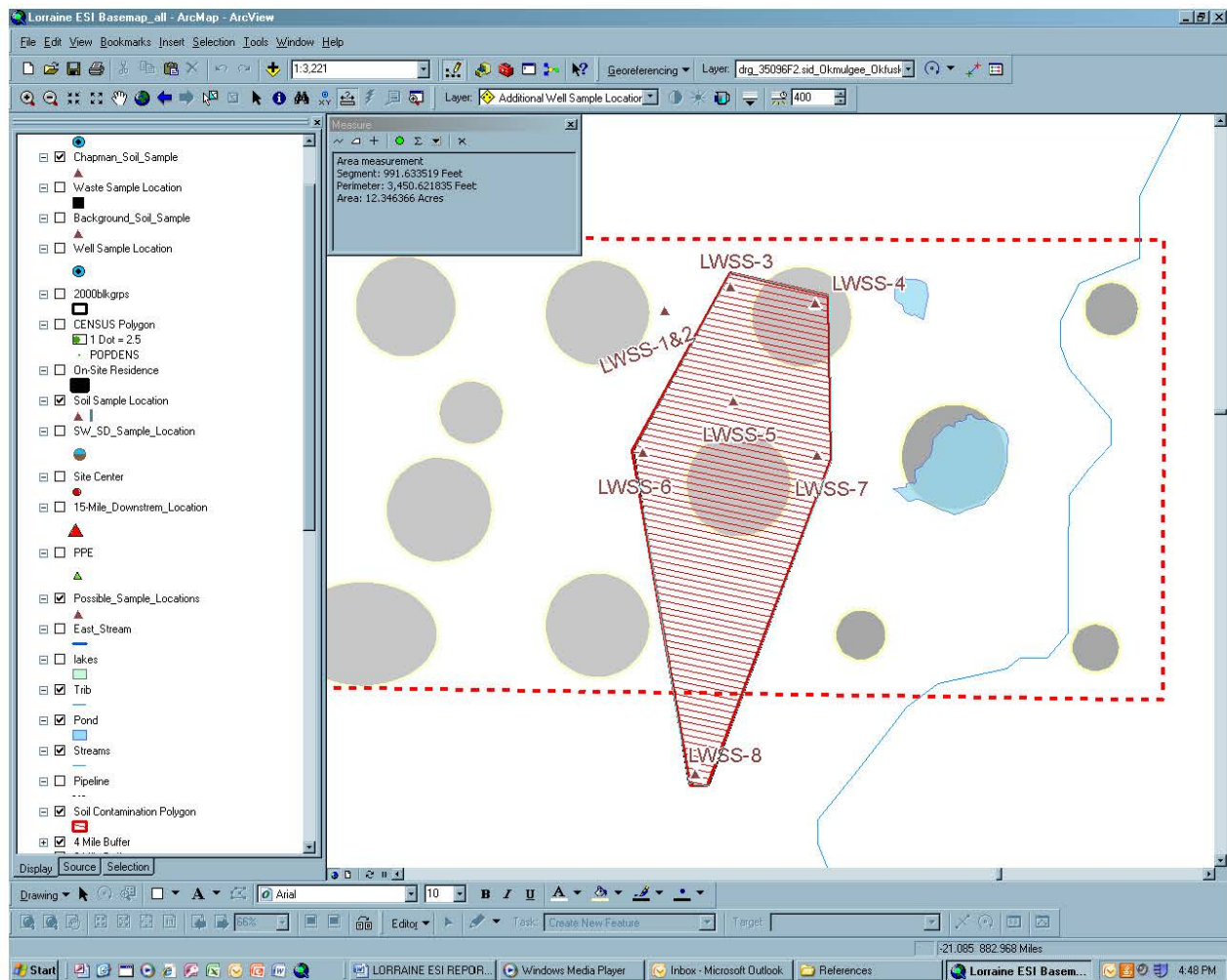
	<u># of customers</u>	<u>Average consumption in 1000 gallons per month</u>
Domestic:	1529	6,764,000
Business	274	4,612,000
Agriculture	0	0
Un-metered	4	45000
Water Sold to Slick	1	850,000

Steve McGuire  
Public Works Director  
Office (918) 367-5589  
Cell (918) 277-6800

## **Reference 16**



### **Reference 17**



**Reference 18**

6-8-2010

Lorraine ESI

Ground water Sampling

DEQ: Todd Downham and Dennis Datin

Arrived on site at 9:15

- Chapman Residence (Jim)

LW6W-8

9:25 AM - Sample collected

- Spoke with Mark Chapman (son of Jim) about sampling his well and collecting a soil sample from his property.

- LW6W-7 (Trailer)

10:30 - Sample collected

had to collect sample from hose

- LW6W-6 (Chestwood Residence)

10:48 - Sample collected. Sample had to be collected from hose

- LW6W-1 ~~to 2~~<sup>10</sup> (Lane Residence)

Sample collected 11:05

- LW6W-2 - collected 11:10

- Field Blank - 11:15

- LW6W-3

Sample collected 11:30

- LW6W-4 - collected 12:55

- LW6W-5 - collected 13:10

- LW6W-9 - collected - 13:33



Corraive CSI Soil & Waste 6/9/2010

DEQ: Tank D & Pump B

LWSS-6 - 9:10

LWW-1 - 9:23

LWSS-142 9:33

Lane Residence

LWSS-3 - 10:00

LWSS-5 - 10:07

LWW-3 to 10:17

LWSS-7 11:10

LWSS-4 - 11:20

FB 11:27

LWW-6 13:45

LWW-5 14:00

LWW-10 14:35

LWSS-8 14:45

LWSS-9 15:15

left at 15:25